

A man with short dark hair and a goatee, wearing a black shirt, is sitting in a black office chair. He is looking towards the camera with a slight smile. His hands are clasped together on a desk in front of him. The background is slightly blurred, showing what appears to be an office setting with a desk and some papers. Overlaid on the image is Arabic text in a white, stylized font. At the bottom left, there are two small blue heart icons.

اللهم أنر قبر من حنّ له القلب
اللهم هب له سعة في قبره لا يراها نهاية
هب لمضجعه طيباً و لظلمته نوراً
ولذنوبه غفراناً و برّد قبره
وزده احساناً فوق احسانه
واجعل الجنة مسكنه

Question 1 of 199



A	<i>Cryptococcus</i>
B	<i>Pneumocystis jirovecii</i>
C	<i>Mycobacterium avium intracellulare</i>
D	<i>Mycobacterium tuberculosis</i>
E	Toxoplasmosis

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Question 1 of 199



Explanation

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Next Question

[Previous Question](#)
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Back to Filters

Question 2 of 199



A 28-year-old man is admitted with a severe fever, (temperature 39.2°C), and flu like symptoms after collapsing with a severe headache at the airport, after returning from Kenya. He admits to poor compliance with his antimalarial therapy and has visited a falciparum endemic area. On examination his BP is 100/60 mmHg, pulse is 95/min regular. He is drowsy and complains of a severe headache.

Which of the following features on examination or investigations would prompt you to suspect severe malaria?

A	Metabolic acidosis
B	Temperature of 38 °C
C	Parasitaemia of 1%
D	Glucose 10 mmol/l
E	Haemoglobin 11 g/dl

2210

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Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 2 of 199



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Which of the following features on examination or investigations would prompt you to suspect severe malaria?

A	Metabolic acidosis
B	Temperature of 38 °C
C	Parasitaemia of 1%
D	Glucose 10 mmol/l
E	Haemoglobin 11 g/dl

Explanation

Clinical features of severe malaria

- impaired consciousness or unrousable coma
- prostration, i.e. generalized weakness so that the patient is unable walk or sit up without assistance
- failure to feed
- multiple convulsions - more than two episodes in 24 h
- deep breathing, respiratory distress (acidotic breathing)
- circulatory collapse or shock, systolic blood pressure < 70 mm Hg in adults and < 50 mm Hg in children
- clinical jaundice plus evidence of other vital organ dysfunction
- haemoglobinuria
- abnormal spontaneous bleeding
- pulmonary oedema (radiological)

Laboratory findings:

- hypoglycaemia (blood glucose < 2.2 mmol/l or < 40 mg/dl)
- metabolic acidosis (plasma bicarbonate < 15 mmol/l)
- severe normocytic anaemia (Hb < 5 g/dl, packed cell volume < 15%)
- haemoglobinuria
- hyperparasitaemia (> 2%/100 000/ μ l in low intensity transmission areas or > 5% or 250 000/ μ l in areas of high stable malaria transmission intensity)
- hyperlactataemia (lactate > 5 mmol/l)
- renal impairment (serum creatinine > 265 μ mol/l).

http://apps.who.int/iris/bitstream/10665/162441/1/9789241549127_eng.pdf?ua=1&ua=1

2210

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Previous Question

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Question 3 of 199

Results of blood tests show:

11

11

Submit

Skip Question

Back to Filters

Question 3 of 199

A 25-year-old postman is referred by his GP with a 4-day history of headache and abdominal pain. He returned from a 2-week holiday in Thailand 10 days ago. He spent a couple of days in the rural area but was otherwise in major cities. He had not gone swimming there. He mainly ate restaurant food and drank the local tap water. He had intercourse with a prostitute but used protection. About 6 days ago he started feeling hot and cold and generally weak. He had a gradual-onset headache, which was now severe, and central abdominal pain; he last opened his bowels 3 days ago and had no appetite. He drinks 6 or 7 pints on the weekends. On examination he looks flushed and lethargic. There is no rash, axillary or neck lymphadenopathy. His temperature is 39.7°C, pulse 76 bpm and regular, BP 98/60 mmHg and respirations 16 breaths/min at rest. His neck is supple and there is no photophobia. His abdomen is slightly tender in the left iliac fossa but there is no rebound tenderness. The neurological examination is intact.

Results of blood tests show:

Bilirubin	34 μmol/l
ALT	154 U/l
ALP	221 U/l
GGT	264 U/l
Glucose	9.7 mmol/l
Albumin	34 g/l
CRP	298 μg/l
WCC	6.5 × 10 ⁹ /l
Plts	83 × 10 ⁹ /l
Hb	10.7 g/dl
MCV	83.2 fl

What is the most likely diagnosis?



- A

Malaria
- B

Schistosomiasis
- C

HIV
- D

Typhoid fever
- E

Influenza

Explanation

Typhoid fever is contracted from the ingestion of *Salmonella typhi* in contaminated food (usually contaminated by faeces or urine). The incubation period is 7-14 days and the patient is usually asymptomatic or has diarrhoea. The patient then develops headache, abdominal pain and usually constipation. On examination there is a relative bradycardia (Faget’s sign). Rose spots, which are present in 25% of cases, are pathognomonic (blanching pink, macular, 2-3-mm spots over the trunk). Blood cultures are most sensitive during the first week but bone marrow culture has a higher sensitivity. Faecal culture has a sensitivity of about 33%, while salmonella serology is neither very sensitive nor specific. Azithromycin and ceftriaxone are potential treatment options due to increasing fluoroquinolone resistance.

2302

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Next Question

Previous Question

Feedback

Tag Question

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Question 4 of 199

Results of blood tests show:

What is the most likely diagnosis?

Submit

Skip Question

Back to Filters

Question 4 of 199

A 37-year-old nurse comes to clinic with a 6-month history of increasing breathlessness and general fatigue. She returned to the UK 2 weeks ago from an 8-month mission in Zanzibar, mainly spent in rural areas. She often swam in the lakes and walked around barefoot. She also mentions vague abdominal discomfort for a couple of months, which disappeared after taking a tablet prescribed by her doctor. She stopped taking the oral contraceptive pill 6 months ago when she couldn't get a new supply. She smokes 10 cigarettes a day and drinks alcohol socially. On examination, she looks pale. Her pulse is 80 bpm and regular, respirations 20 breaths/min at rest increasing to 28 on walking 40 metres. Her chest is clear, abdomen soft but she has some swelling of her ankles. A CXR is normal and ECG shows sinus rhythm.

Results of blood tests show:

Na	134 mmol/l
K	3.8 mmol/l
bilirubin	21 µmol/l
ALT	45 U/l
ALP	84 U/l
albumin	32 g/l
WBC	8.4 × 10 ⁹ /l
Hb	8.8 g/dl
MCV	72.1 fl
plts	460 × 10 ⁹ /l

What is the most likely diagnosis?



- A

PE
- B

Schistosomiasis
- C

Duodenal ulcer
- D

Left ventricular failure
- E

Hookworm infection

Explanation

Hookworm infection in humans is caused by infection with the helminth nematode parasites *Necator americanus* and *Ancylostoma duodenale*. Infection occurs when the larvae invade exposed skin, eg through contact with contaminated soil. Around 740 million people world-wide are affected, the greatest number of case occurring in Asia followed by Sub-Saharan Africa.

The major pathology in humans occurs when the adult parasites cause intestinal blood loss. Depending on the body stores of iron, a hookworm burden of 40-160 is associated with a Hb of < 11 g/dl. During the first 9 weeks after infection, ie when the burden of hookworms is highest in the small intestine, some patients will have an eosinophilia. Otherwise, most cases present with a microcytic anaemia.

Proper sanitation and footwear are important for the control of hookworm. The treatment of choice for the removal of hookworms from the intestines is a single dose of a benzimidazole anthelmintic, either albendazole (400 mg) or mebendazole (500 mg).

2303

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Next Question

- Previous Question

Feedback
- Tag Question

End Session

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Question 5 of 199

Results of blood tests show:

No organisms were seen on the blood film and no ova cysts or parasites seen in a stool sample. Compression Doppler U/S L leg showed that the left femoral and popliteal veins are patent.

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Skip Question

Question 5 of 199

Results of blood tests show:

No organisms were seen on the blood film and no ova cysts or parasites seen in a stool sample. Compression Doppler U/S L leg showed that the left femoral and popliteal veins are patent.



- ### Explanation

Loiasis is a filarial infection caused by *Loa Loa*. It occurs in Western and Central Africa and is transmitted by the Chrysops fly. Most infected people have a history of prolonged exposure. It causes painful Calabar swellings of the limbs. Conjunctival spread, which give *Loa Loa* (eye worm) its name, occurs in 10-20% of cases.

Circulating microfilariae are only rarely detectable. Characteristic laboratory abnormalities in loiasis include eosinophilia and elevated levels of serum IgE, both of which are more pronounced in symptomatic patients without detectable microfilariae in the blood. Weekly chemoprophylaxis with 300 mg of diethylcarbamazine citrate is effective for the prevention of loiasis in travellers spending long periods in areas where *L. Loa* is endemic. Ivermectin is the treatment of choice for loiasis. Indeed in the treatment of onchocerciasis, diethylcarbamazine is no longer recommended due to this type of side effect (often being particularly severe in this case): ivermectin is rather the choice in onchocerciasis.

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Tag Question

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Session Progress

Question 6 of 199

Blood results show:

Na ⁺	134 mmol/l
K ⁺	5.1 mmol/l
Urea	3.6 mmol/l
Creatinine	65 μmol/l
Glucose	7.8 mmol/l
Albumin	32 g/l
CRP	102 μg/l
WCC	9.5 × 10 ⁹ /l
Hb	11.2 g/dl
MCV	92 fl
Plts	142 × 10 ⁹ /l

11

- | | |
|---|---------------------------|
| A | Meningococcal septicaemia |
| B | Heroin overdose |
| C | Myasthenia Gravis |
| D | Botulism |
| E | Guillain-Barré syndrome |

Submit

[Previous Question](#)

Skip Question

Calculator

Normal Values

Back to Filters

Question 6 of 199

A 24-year-old intravenous drug user presents to A&E with a 2-day history of blurred vision, photophobia and a 3-hour history of increasing shortness of breath. She has been injecting heroin and cocaine for 7 years and has had previous admissions with a groin abscess and cellulitis. She usually uses clean needles. She smokes 20 roll-ups a day and works as a prostitute. She had a negative HIV test 6 months ago. Her companion feels that her speech has become more slurred since yesterday. On examination she is afebrile, seems unwell and slightly short of breath. Her pulse is 72 bpm and regular, BP 96/52 mmHg, respirations 32 breaths/min at rest and saturations 95% on room air. There is no lymphadenopathy or rash and her neck is supple. She has a right groin abscess. Heart sounds are normal and her chest is clear. Her liver is felt 2 cm below the right costal margin and a 1 cm spleen below the left costal margin. She has an ataxic gait, bilateral ptosis and you also elicit diplopia. CXR is normal, ECG shows sinus rhythm.

Blood results show:

Na ⁺	134 mmol/l
K ⁺	5.1 mmol/l
Urea	3.6 mmol/l
Creatinine	65 μmol/l
Glucose	7.8 mmol/l
Albumin	32 g/l
CRP	102 μg/l
WCC	9.5 × 10 ⁹ /l
Hb	11.2 g/dl
MCV	92 fl
Plts	142 × 10 ⁹ /l

What is the most likely diagnosis?

- A

Meningococcal septicaemia
- B

Heroin overdose
- C

Myasthenia Gravis
- D

Botulism
- E

Guillain-Barré syndrome

Explanation

Botulism is caused by toxinogenic strains of *Clostridium botulinum* and is usually caught from improperly tinned foods, although it can also be contracted from meat products and uncooked seafoods, and as in this case from injecting abscesses.

It causes diplopia, blurred vision, photophobia, bulbar palsy, ataxia and sudden cardiorespiratory failure with no GI symptoms.

The patient should be intubated early and nursed on ITU. Antitoxin needs to be given as quickly as possible before the patient has a cardiac arrest.

Botulism is usually diagnosed via stool culture. Alternatively, a blood test to identify the toxin or laboratory analysis of suspected food can be used.

The hepatosplenomegaly seen here is most likely due to co-existent chronic viral hepatitis and portal hypertension.

2305

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Back to Filters

Question 7 of 199

A 33-year-old Somali woman with a 1-month history of increasing lethargy and confusion was brought to A&E by her husband. He said she had been deteriorating gradually and now needed help dressing. Her speech had become slurred and had fallen three times in the last week. She had complained of generalised headache during the last week and also nausea and anorexia. They had been in the UK for 4 years. She had no weight loss, fever or night sweats and no cough, arthralgia or rash. She is a type-2 diabetic and is on a biguanide and also takes the oral contraceptive pill. She lived with her husband and two children, all of whom were well, in a council flat. On examination, she is drowsy and has a GCS of 14/15. Her temperature is 38.3°C. There is no lymphadenopathy or rash, but her neck is a little stiff. Her heart, lung and abdominal examinations are all normal. Her cranial nerves are symmetrical but she will not permit you to attempt ophthalmoscopy due to photophobia. Her left side seems to have increased tone compared to the right and seems slightly weaker. CT head (without contrast) shows bilateral hypodense lesions in the periventricular regions.

CSF results obtained at lumbar puncture reveal:

opening pressure	18 mmH ₂ O
glucose	6.1 mmol/l
protein	0.7 g/l
WCC	5/μl

Results of blood tests show:

glucose	7.8 mmol/l
albumin	31 g/l
ALT	35 U/l
ALP	62 U/l
CRP	101 μg/l
WCC	3.4 × 10 ⁹ /l
Hb	10.1 g/dl
plts	215 × 10 ⁹ /l

What is the most likely diagnosis?

- A

Tuberculosis
- B

Bacterial meningitis
- C

Progressive multifocal leucoencephalopathy
- D

Cryptococcal meningitis
- E

Multiple sclerosis

2306

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 7 of 199

CSF results obtained at lumbar puncture reveal:

Results of blood tests show:

What is the most likely diagnosis?

- ### Explanation

Cerebrospinal fluid (CSF) is usually normal, but protein may be elevated slightly.

The periventricular lesions seen here are more suggestive of PML vs MS, where generalised patchy demyelination is seen. The subacute presentation is not consistent with bacterial or cryptococcal meningitis.

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[Previous Question](#)

Tag Question

Feedback

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Question 8 of 199

Results of blood tests showed:

Na	134 mmol/l
K	4.0 mmol/l
Ca	2.34 mmol/l
bilirubin	14 mmol/l
urea	5.5 mmol/l
creatinine	93 μmol/l
ALP	152 U/l
ALT	30 U/l
albumin	19 g/l
GGT	111 U/l
amylase	52 U/l
CRP	156 mg/l
WCC	13.6 × 10 ⁹ /l
Neutrophils	11.6 × 10 ⁹ /l
Hb	9.0 g/dl
MCV	83 fl
plt	387 × 10 ⁹ /l
INR	1.5

- | | |
|---|--|
| A | Rifampicin, isoniazid and ethambutol |
| B | Co-amoxiclav and erythromycin |
| C | Co-amoxiclav, clarithromycin and metronidazole |
| D | Cefuroxime and Metronidazole |
| E | Ciprofloxacin |

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[Previous Question](#)
[Skip Question](#)

Skip Question

Calculator 

Normal Values

Question 8 of 199

Results of blood tests showed:

The patient was transferred to HDU and treated for a severe pneumonia. The pleural fluid sent proved to be negative for acid-fast bacilli. A CT chest / abdomen revealed a multi-loculated right-sided pleural effusion and a 10 × 6-cm hepatic collection. No organisms were grown on blood culture, sputum, urine, stool, drainage fluid and wound swabs.

- ## Explanation

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Next Question

Tag Question

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Session Progress

Back to Filters

Question 9 of 199

An unemployed 38-year-old man was admitted with bilateral lower limb swelling. He has no past medical history of note. He lives in a hostel and is known to drink heavily. On examination there is an erythematous rash that is worse on his right leg compared to the left. He is treated with iv flucloxacillin 1 g for 2 weeks, which gives some degree of improvement. However, on the house-officer ward round it is noted that the patient has been spiking temperatures up to 38 °C. He feels well in himself otherwise.

His bloods are as follows (normal ranges):

WCC	13.0 × 10 ⁹ /l
Neutrophils	7.0 × 10 ⁹ /l (2–7.5)
Lymphocytes	3.4 × 10 ⁹ /l (1.3–3.5)
Eosinophils	0.82 × 10 ⁹ /l (0.04–0.44)
Hb	13.6 g/dl
Plts	145 × 10 ⁹ /l

What is the most likely cause of his pyrexial illness?

- A

Underlying bilateral DVTs
- B

Lyme disease
- C

MRSA infection
- D

Insect bites
- E

Drug reaction

2355

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Previous Question

Skip Question

Calculator

Normal Values

Question 9 of 199

His bloods are as follows (normal ranges):

3

3

- ### Explanation

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Next Question

Tag Question

End Session

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Back to Filters

Question 10 of 199

A 22-year-old man presents with a 4-day history of vague tingling over the upper right hand side of his face. Today he woke up with crusted lesions over his face. Vesicles are also present, but only over his forehead, the tip of his nose and chin. He has a past medical history of eczema affecting mainly his face. He has noticed some watering of his right eye. Medications include topical tacrolimus only. He presents to the Emergency Department of a teaching hospital.

What is the most important step with respect to management?



- | | |
|---|--|
| A | Start oral aciclovir |
| B | Urgent ophthalmologic opinion |
| C | Commence viscotears |
| D | Commence topical aciclovir |
| E | Stop tacrolimus and review in 48 hours |

2356

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Previous QuestionSkip Question

Calculator

Normal Values

Back to Filters

Question 10 of 199

A 22-year-old man presents with a 4-day history of vague tingling over the upper right hand side of his face. Today he woke up with crusted lesions over his face. Vesicles are also present, but only over his forehead, the tip of his nose and chin. He has a past medical history of eczema affecting mainly his face. He has noticed some watering of his right eye. Medications include topical tacrolimus only. He presents to the Emergency Department of a teaching hospital.

What is the most important step with respect to management?

- A

Start oral aciclovir
- B

Urgent ophthalmologic opinion
- C

Commence viscotears
- D

Commence topical aciclovir
- E

Stop tacrolimus and review in 48 hours

Explanation

This is Herpes zoster ophthalmicus, caused by the varicella zoster virus. Vesicles present on the nasolabial fold or on the tip of the nose suggests involvement of the cornea (Hutchinson sign). Therefore the most important consideration is urgent ophthalmological assessment to reduce the risk of loss of vision. Various ophthalmic manifestations may occur including keratitis (within first few days); periorbital and conjunctival oedema (1st week); secondary bacterial (Staphylococcal) infection; later scarring of anterior chamber leading to glaucoma and cataracts. Of course, all the other options are sensible but referral to an ophthalmologist is the most important.

2356

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Next Question

- Previous Question

Feedback
- Tag Question

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Question 11 of 199

His bloods today are as follows:

Na	145 mmol/l
K	4.3 mmol/l
urea	8 mmol/l
creatinine	65 μ mol/l
WCC	4×10^9 /l
neutrophils	0.2×10^9 /l (low)
Hb	13.1 g/dl
plts	120×10^9 /l

Which organism is the most likely culprit?

- | | |
|---|-------------------------------|
| A | <i>Staphylococcus aureus</i> |
| B | <i>Mycoplasma pneumonia</i> |
| C | <i>Pneumocystis jirovecii</i> |
| D | <i>Histoplasma capsulatum</i> |
| E | <i>Legionella</i> sp |

Submit

[Previous Question](#)

Skip Question

Calculator

Normal Values

Back to Filters

Question 11 of 199

A 34-year-old man presents with sore throat, fever and joint pains. He was diagnosed with HIV 8 years ago but has had a number of problems with medications because of their side-effects. His current CD4 count is 100 cells/mm³. He has been feeling unwell for the last few months and has noticed that his exercise tolerance has decreased. Over the last 6 weeks he has developed red, raised, tender lesions over his shins.

His bloods today are as follows:

Na	145 mmol/l
K	4.3 mmol/l
urea	8 mmol/l
creatinine	65 µmol/l
WCC	4 × 10 ⁹ /l
neutrophils	0.2 × 10 ⁹ /l (low)
Hb	13.1 g/dl
plt	120 × 10 ⁹ /l

The CXR shows two cavitating lesions in the right lung.
Which organism is the most likely culprit?

- A

Staphylococcus aureus
- B

Mycoplasma pneumonia
- C

Pneumocystis jirovecii
- D

Histoplasma capsulatum
- E

Legionella sp

Explanation

Fungal infections are common in neutropenic patients with HIV. Acute histoplasmosis can present with glandular fever-type symptoms, arthralgia and erythema nodosum. Sometimes, a hepatitis is associated with it. *Pneumocystis jirovecii* pneumonia is obviously a common choice for candidates, but the associated features are often not seen in patients with this type of pneumonia. (*Pneumocystis carinii* has recently been renamed *Pneumocystis jirovecii*.) A chest X-ray in patients with *P. jirovecii* pneumonia typically reveals fine interstitial and/or nodular infiltrate, with about 10% of patients having a normal chest X-ray at presentation. Occasionally there are focal infiltrates, but cavitation is more suggestive of tuberculous/bacterial or fungal aetiology. Induced sputum with nebulised saline should produce specimens suitable for culture. *S. aureus* is associated with acute cavitating pneumonia, often occurring post influenza infection. *Mycoplasma* and *legionella* usually lead to consolidation without cavitation.

2357

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Responses Total:	11
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Back to Filters

Question 12 of 199

A 35-year-old woman presents with a 6-week history of lower back pain. She hasn't noticed that it has limited her activities and she is still able to go to her yoga classes. The pain is, however, persistent and on occasion she has felt feverish. She denies any dysuria or weight loss. She suffered multiple UTIs in her twenties. Dipstick urine, NAD. On examination, there was mild abdominal tenderness, bowel sounds were present, WCC normal, CRP elevated.

What is the diagnosis?



- | | |
|---|-------------------------|
| A | Urinary tract infection |
| B | Pyelonephritis |
| C | Chlamydial infection |
| D | Gonococcal sepsis |
| E | Renal stones |

2511

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Previous QuestionSkip Question

Calculator

Normal Values

Question 12 of 199

A	Urinary tract infection
B	Pyelonephritis
C	Chlamydial infection
D	Gonococcal sepsis
E	Renal stones

Explanation

The possibility of pelvic infection in young women of reproductive age who complain of back ache, particularly chlamydia, should always be borne in mind. Back pain with no restriction of spinal movement, or that is not exacerbated by back movement suggests that the source of the problem lies elsewhere. There is no evidence to suggest that this patient is septic, although gonococcus is a possibility.

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Next Question

Previous Question

Tag Question

Feedback

End Session

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Responses Incorrect:	12
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Back to Filters

Question 13 of 199

A 33-year-old gentleman is referred by his general practitioner (GP) to the medical on-call team. He gives a one-day history of frontal headaches, nausea and vomiting. He was prescribed cefalexin by his GP earlier in the day. Three years ago he had a left cerebellopontine angle tumour removed and 10 months later a ventriculoperitoneal shunt was inserted for hydrocephalus. On examination he is febrile. Fundoscopy is normal. Pupils are reactive and equal to light. There is a left lower motor neurone VII nerve palsy. Kernig’s sign is positive with increased cervical tone. The rest of the physical examination is unremarkable.

Initial investigations are as follows:

Hb	10.9 g/dl
WCC	12 × 10 ⁹ /l
Platelets	310 × 10 ⁹ /l
Blood cultures:	No growth after 48 h
C-reactive protein (CRP)	180 mg/l
Serum glucose	5.1 mmol
Erythrocyte sedimentation rate (ESR)	35 mm/1 st hr
Cerebrospinal fluid (CSF) glucose	2.7 mmol (3.3–4.4)
CSF WCC count	1400 /ml (<5)
CSF protein	0.68 g/l (0.15–0.45)
CSF culture	No growth after 48 h

Which is the most likely causative organism?

- A

Streptococcus pneumoniae
- B

Staphylococcus epidermis
- C

Neisseria meningitidis
- D

Haemophilus influenzae type B
- E

Escherichia coli

6262

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Previous QuestionSkip Question

Calculator✔

Normal Values✔

Back to Filters

Question 13 of 199

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Serum glucose	5.1 mmol
Erythrocyte sedimentation rate (ESR)	35 mm/1 st hr
Cerebrospinal fluid (CSF) glucose	2.7 mmol (3.3-4.4)
CSF WCC count	1400 /ml (<5)
CSF protein	0.68 g/l (0.15-0.45)
CSF culture	No growth after 48 h

Which is the most likely causative organism?

- A

Streptococcus pneumoniae
- B

Staphylococcus epidermis
- C

Neisseria meningitidis
- D

Haemophilus influenzae type B
- E

Escherichia coli

Explanation

Meningitis following neurosurgical procedures such as shunt insertion tends to involve a different group of organisms to normally acquired meningitis. Seventy-five percent of all infections involving shunt insertions due to hydrocephalus are caused by Staphylococcus epidermis. Next commonest is Staphylococcus aureus and then Gram-negative bacilli such as E.coli, Proteus or Klebsiella. A, C and D are the organisms that commonly cause meningitis in adults with no underlying cerebral abnormalities.

6262

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Responses Correct:	0
Responses Incorrect:	13
Responses Total:	13
Responses - % Correct:	0%

Back to Filters

Question 14 of 199

A 22-year-old medical student presents with a one-week history of haematuria and haemospermia. He is very anxious. He has just returned from an elective in East Africa. He has no other complaints. He denies dysuria, frequency or suprapubic pain. He had sexual intercourse with two fellow students while abroad. He takes no regular medications but tells you he smokes marijuana occasionally. He has never had anything like this before. He admits to going out into the countryside during his visit, including freshwater swimming.

What is the most likely diagnosis?



- A Chlamydia trachomatis infection
- B Urinary tract infection
- C Neisseria gonococcus
- D Blackwater fever (malaria)
- E Schistosoma haematobium

6263

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Previous Question Skip Question

Calculator 

Normal Values 

Question 14 of 199

A	Chlamydia trachomatis infection
B	Urinary tract infection
C	Neisseria gonococcus
D	Blackwater fever (malaria)
E	Schistosoma haematobium

Explanation

Schistosomiasis is caused by flukes. Urinary schistosomiasis (*S. haematobium*) occurs in Africa, the Middle East, Spain, Portugal and Greece. Signs are frequency, dysuria, haematuria (occasionally haematospermia) and incontinence. It may progress to hydronephrosis and renal failure. This young man caught the infection from swimming in Lake Malawi. Treatment is with oral praziquantel.

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[Previous Question](#)

Tag Question

Feedback

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Responses Correct:	0
Responses Incorrect:	14
Responses Total:	14
Responses - % Correct:	0%

Back to Filters

Question 15 of 199

A 27-year-old homosexual male attends the clinic presenting with soreness of the penis with some itching. He has noticed some spots over the last two days, which are exquisitely painful. He admits to a rash previously but not like this. He admits to recently having unprotected anal intercourse with a casual partner. He also complains of dysuria and a white urethral discharge. Over the last week he has also been suffering from flu-like symptoms. On examination there are three shallow tender sloughing ulcers under the foreskin as well as generalised erythema of the surrounding skin. Urine dipstick is unremarkable and urethral swab microscopy reveals pus cells ++.

Which investigation is most likely to provide the diagnosis?

- | | |
|---|---|
| A | Syphilis serology |
| B | Herpes simplex serology |
| C | Polymerase chain reaction (PCR) test for Herpes simplex |
| D | Culture for Herpes simplex |
| E | HIV serology |

6264

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Question 15 of 199



Which investigation is most likely to provide the diagnosis?

A	Syphilis serology
B	Herpes simplex serology
C	Polymerase chain reaction (PCR) test for Herpes simplex
D	Culture for Herpes simplex
E	HIV serology

Most young sexually active males with genital ulcers will either have genital herpes, syphilis or chancroid (caused by *Haemophilus ducreyi*). The most common cause of multiple shallow ulcers in both heterosexual and homosexual males is herpes simplex. Primary genital herpes is often associated with flu-like symptoms, inguinal lymphadenopathy and urethral discharge especially if lesions are present at the urethral meatus. It has the risk of causing urinary retention, as it can be so painful. Type-specific serology can be helpful in limited circumstances but the best investigation for diagnosis with highest sensitivity is polymerase chain reaction (PCR) testing. Cultures often give false-negative results because of a lower sensitivity.

Syphilitic ulcers should always be considered in gay men as this is on the rise. It is usually a single ulcer, which is non-tender with a firm rim.

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Previous Question

Tag Question

Feedback

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Responses Correct:	0
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Question 16 of 199

-
-
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[Previous Question](#)
[Skip Question](#)

Skip Question

Question 16 of 199



Explanation

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Next Question

Previous Question

Tag Question

Feedback

End Session

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Responses Correct:	0
Responses Incorrect:	2
Responses Total:	2
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Question 17 of 199

On examination she is flushed and her temperature is 39°C. There is an erythematous, salmon coloured rash on her trunk. There is also cervical lymphadenopathy. The rest of the examination is unremarkable.

Blood cultures	Gram-negative rods in 2/3 bottles.
Thin malaria films	×2 are negative.
Midstream urine	Sterile pyuria
Chest X-ray	No abnormality detected
Haemoglobin (Hb)	12.4 g/dl
White cell count (WCC)	$10.4 \times 10^9/\text{l}$
Platelets	$340 \times 10^9/\text{l}$
Na ⁺	139 mmol/l
K ⁺	4.1 mmol/l
CRP	440 mg/l
Creatinine	97 μmol/l
Urea	6.2 mmol/l
Erythrocyte sedimentation rate (ESR)	66 mm/1 st hr

A	Cytomegalovirus infection
B	Plasmodium falciparum
C	Ebstein-Barr virus infection
D	Salmonella typhi infection
E	Urinary tract infection

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Skip Question

Question 17 of 199

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Platelets	$340 \times 10^9/l$
Na ⁺	139 mmol/l
K ⁺	4.1 mmol/l
CRP	440 mg/l
Creatinine	97 μmol/l
Urea	6.2 mmol/l
Erythrocyte sedimentation rate (ESR)	66 mm/1 st hr

A	Cytomegalovirus infection
B	Plasmodium falciparum
C	Ebstein-Barr virus infection
D	Salmonella typhi infection
E	Urinary tract infection

Persistent fever in the tropical traveller should always alert the differential diagnoses of typhoid fever and malaria. In this young lady the former is the most likely culprit. Despite the lack of enteric symptoms salmonella explains all the symptoms. S.typhi typically has an incubation period of 10-14 days followed by a prodrome of flu-like symptoms. Thereafter the disease has stages as follows:

Week 1	Pyrexia with inappropriate bradycardia
Week 2	Maculopapular rash that blanches on pressure Lymphadenopathy Hepatosplenomegaly
Week 3	Complications e.g. lobar pneumonia, endocarditis, haemolytic anaemia, meningitis, acute cholecystitis and osteomyelitis.

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1 2 3

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Responses Correct:	0
Responses Incorrect:	3
Responses Total:	3
Responses - % Correct:	0%

Question 18 of 199

Thin films for malaria are negative.

11

A	Ciprofloxacin
B	Conservative measures only
C	Intravenous (iv) quinine
D	Praziquantel
E	Doxycycline

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Skip Question

Back to Filters

Question 18 of 199

A 58-year-old lady returns from a three-week holiday in South Africa. She went with her husband on a safari while out there. She is complaining of fever and headaches. She took malaria prophylaxis while out there and has continued the two weeks after returning as advised by her general practitioner (GP). In her past medical history she has gastro-oesophageal reflux disease for which she takes lansoprazole 30 mg od. Her appetite is good and she has not noticed any weight loss.

On examination she is febrile, her blood pressure is 140/80 mmHg; pulse 98 beats/minute; oxygen saturation is 96% on air.

She has a 1 cm-diameter black scab on her right forearm, which is surrounded by erythema and some swelling. There is right axillary lymphadenopathy. Her abdomen is mildly tender on examination with no hepatosplenomegaly.

Chest X-ray is normal

Thin films for malaria are negative.

Which is the management of choice?



A	Ciprofloxacin
B	Conservative measures only
C	Intravenous (iv) quinine
D	Praziquantel
E	Doxycycline

Explanation

Tick typhus results from the bite of a tick and is a common infection in those who walk in scrubland in or near Southern African game parks. It is not all that common, with about 100 new cases in the UK annually. The clinical picture above is typical and diagnosis is made clinically when falciparum malaria is excluded. A single dose of doxycycline 100 mg leads to rapid clinical recovery.

6268

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Previous Question	Tag Question
Feedback	End Session

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Responses Correct:	0
Responses Incorrect:	4
Responses Total:	4
Responses - % Correct:	0%

Back to Filters

Question 19 of 199

A 22-year-old student just returned from a gap year complaining of a two-week history of watery diarrhoea. He also complains of abdominal cramps, nausea and vomiting. He opens his bowels up to six times a day.

He has travelled through South America participating in the Inca Trail. He then went to New Zealand and on the way back trekked in Nepal. He tells you that he did eat off the street stalls and thinks that it might be related.

On examination he is febrile with a temperature of 38.1°C. His blood pressure is 120/80 mmHg with a pulse of 130/min regular. Saturation on air is 99%. Respiratory examination is unremarkable. Abdominal examination reveals mild tenderness. Rectal examination reveals soft brown stool and no masses.

- Electrocardiogram (ECG) shows a sinus tachycardia.
 - Erect chest film and abdominal X-ray are normal
 - Blood cultures × 2 show no growth within 48 h
 - Stool cultures × 2 show no growth
 - Stool microscopy shows no trophozoites/spores of giardia; no ova or parasites seen
- ≡

Blood tests are as follows:

Haemoglobin (Hb)	16 g/dl
White cell count (WCC)	11.9 × 10 ⁹ /l
Platelets	390 × 10 ⁹ /l
Na ⁺	144 mmol/l
K ⁺	3.2 mmol/l
Urea	9.6 mmol/l
Creatinine	117 μmol/l
C-reactive protein (CRP)	45 mg/l
Erythrocyte sedimentation rate (ESR)	23 mm/h

He is rehydrated aggressively. The diarrhoea persists for a further week and he is given a single dose of 2 g tinidazole empirically. Unfortunately two weeks later the diarrhoea is still a problem with vague abdominal cramping. He is referred to the gastroenterologists who undertake a small bowel endoscopy revealing partial villous atrophy.

What is the most likely diagnosis?

- A

Giardiasis
- B

Tropical sprue
- C

Cryptosporidium
- D

Coeliac disease
- E

Strongyloidiasis

6269

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Previous Question

Skip Question

Calculator

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Normal Values

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Question 19 of 199

On examination he is febrile with a temperature of 38.1°C. His blood pressure is 120/80 mmHg with a pulse of 130/min regular. Saturation on air is 99%. Respiratory examination is unremarkable. Abdominal examination reveals mild tenderness. Rectal examination reveals soft brown stool and no masses.

- Blood tests are as follows:

What is the most likely diagnosis?

A	Giardiasis
B	Tropical sprue
C	Cryptosporidium
D	Coeliac disease
E	Strongyloidiasis

Most patients presenting with diarrhoea as returned travellers will often have had symptoms for more than 48 h, most will recover without antibiotics. This young man complains of traveller's diarrhoea. *E. Coli*, *Campylobacter*, *Salmonella* and *Cryptosporidium* are the most common causes however this patient's symptoms seem to persist despite antibiotics and rehydration. Stool cultures sent for microscopy have excluded the diagnosis of *Giardia* and *Cryptosporidium* but these patients should be as in this case treated empirically for the former with tinidazole 2 g. Small bowel endoscopy is the most sensitive test for strongyloidiasis (a worm usually acquired by walking barefoot in warm, moist contaminated areas with human faeces, found in any continent). Endoscopy reveals partial villous atrophy most suggestive of tropical sprue. The lack of malabsorption features makes coeliac disease less likely. Tetracycline and folic acid may help cases of tropical sprue.

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Responses Incorrect:	5
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Back to Filters

Question 20 of 199

A 32-year-old woman presents with fever and a sore throat 3 weeks after returning to the UK from a four-week holiday in Kenya. While in Kenya she did swim in freshwater lakes. She has a number of mosquito bites on her legs. She admits to trekking in the jungle for at least a week.

Examination revealed a temperature of 39°C. There was evidence of pharyngitis and a diffuse erythematous rash on the trunk. There was axillary lymphadenopathy.

Blood results were as follows:

Haemoglobin (Hb)	13 g/dl
White cell count (WCC)	4.3 × 10 ⁹ /l
Neutrophils	3.2 × 10 ⁹ /l
Lymphocytes	1.1 × 10 ⁹ /l
Platelets	200 × 10 ⁹ /l

Thin film	No malarial parasites were seen
Blood cultures x 2	No growth after 24 h
Throat swab culture	No growth

What is the most likely diagnosis?

- A

Falciparum malaria
- B

Dengue fever
- C

HIV infection
- D

Infectious mononucleosis
- E

Toxoplasma gondii

6270

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 20 of 199

Examination revealed a temperature of 39°C. There was evidence of pharyngitis and a diffuse erythematous rash on the trunk. There was axillary lymphadenopathy.

Haemoglobin (Hb)	13 g/dl
White cell count (WCC)	$4.3 \times 10^9/\text{l}$
Neutrophils	$3.2 \times 10^9/\text{l}$
Lymphocytes	$1.1 \times 10^9/\text{l}$
Platelets	$200 \times 10^9/\text{l}$

Thin film	No malarial parasites were seen
Blood cultures x 2	No growth after 24 h
Throat swab culture	No growth



- | | |
|---|--------------------------|
| A | Falciparum malaria |
| B | Dengue fever |
| C | HIV infection |
| D | Infectious mononucleosis |
| E | Toxoplasma gondii |

After inoculation the window or seroconversion period can be as short as 2-3 weeks, and up to 3 months. HIV antibody may not be detected at this time. The HIV p24 antigen may be detectable during seroconversion. Approximately one-third of patients develop clinical seroconversion illness. Characteristic features are fever, malaise, rash, sore throat, diarrhoea, lymphadenopathy, meningo-encephalitis and arthralgia. If the seroconversion illness is severe then antiretroviral treatment should be used. Whether such early treatment improves long-term prognosis is unknown. In dengue, presentation of fever is more often associated with headache, generalised myalgia, facial flushing and sometimes nausea and vomiting as well as haemorrhagic manifestations. In travellers, symptoms that begin more than 2 weeks after they depart from an endemic area and fever that lasts longer than 10 days are probably not due to dengue.

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Next Question

[Previous Question](#)

Tag Question

Feedback

End Session

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Responses Correct:	0
Responses Incorrect:	6
Responses Total:	6
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Back to Filters

Question 21 of 199

A 22-year-old nursing student presents with a 12 h history of fever, vomiting, diarrhoea and severe myalgia. She recently completed a 3-day course of oral trimethoprim for a urinary tract infection diagnosed by her general practitioner. The only regular medication she takes is the oral contraceptive pill, and a recent menstrual period was normal. She is a non-smoker and drinks alcohol socially. She denies any recent travel abroad. On examination she looks unwell but conscious. She is febrile with a temperature of 39.5°C. Her pulse rate is 130 beats/min and blood pressure 89/60 mmHg. There is no nuchal rigidity or photophobia. There is a maculopapular rash on the trunk and lower limbs. There is marked tenderness of the thigh muscles. Respiratory, abdominal and neurological examination is unremarkable. Blood cultures × 2 show no growth after 48 h. Urine culture shows no growth after 48 h.

What is the most likely diagnosis?

- A

Ulcerative colitis
- B

Food poisoning secondary to enterotoxigenic E.coli
- C

Gram-negative septicaemia
- D

Toxic shock syndrome
- E

Polymyositis

6271

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Previous Question

Skip Question

Calculator



Normal Values



Question 21 of 199

What is the most likely diagnosis?

Explanation

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Next Question

Previous Question

Tag Question

Feedback

End Session

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Responses Correct:	0
Responses Incorrect:	7
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Responses - % Correct:	0%

Back to Filters

Question 22 of 199

A 26-year-old male aid worker presents with a week history of headache and two days of confusion. He has recently returned from six months work in Kenya.

On examination his temperature is 39°C, blood pressure is 125/85 mmHg and pulse is 88 beats/min. Saturation on air is normal.

Physical examination of all systems is unremarkable except for bilateral upgoing plantars.

Blood tests are as follows:

Haemoglobin	10.0 g/dl
White cell count (WCC)	9 × 10 ⁹ /l
Neutrophils	3.1 × 10 ⁹ /l
Platelets	110 × 10 ⁹ /l



No malarial parasites were seen on initial blood film.

Chest X-ray	No abnormality detected
CT head	No abnormality detected
Cerebrospinal fluid (CSF) cell count	3 lymphocytes
CSF protein	0.5 g/dl
CSF glucose	3.8 mmol/l
Serum glucose	4.0 mmol/l

Which ONE drug is most appropriate in his immediate management?

- A

Intravenous (iv) quinine
- B

iv aciclovir
- C

iv cefotaxime
- D

Antiretroviral therapy
- E

Prednisolone

6272

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Back to Filters

Question 22 of 199

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Physical examination of all systems is unremarkable except for bilateral upgoing plantars.

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Neutrophils	3.1 × 10 ⁹ /l
Platelets	110 × 10 ⁹ /l



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Chest X-ray	No abnormality detected
CT head	No abnormality detected
Cerebrospinal fluid (CSF) cell count	3 lymphocytes
CSF protein	0.5 g/dl
CSF glucose	3.8 mmol/l
Serum glucose	4.0 mmol/l

Which ONE drug is most appropriate in his immediate management?

- A

Intravenous (iv) quinine
- B

iv aciclovir
- C

iv cefotaxime
- D

Antiretroviral therapy
- E

Prednisolone

Explanation

Malaria has an incubation period of up to two weeks. Most travellers present within two months. After a prodrome of headache, malaise, myalgia and anorexia there may be paroxysms lasting 8–12 h. Complications include cerebral malaria, which has a mortality of 20%. If one thick and thin film is negative, it should be repeated if the diagnosis is strongly suspected as 3 or more films are usually required to exclude malaria. In this patient it is imperative that cerebral malaria is treated with iv quinine. Hypoglycaemia occurs in severe malaria. Signs of cerebral malaria include seizures, hypertonia, hyperreflexia, upgoing plantars, nystagmus and papilloedema.

6272

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Next Question

- Previous Question

Feedback
- Tag Question

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Responses Correct:	0
Responses Incorrect:	8
Responses Total:	8
Responses - % Correct:	0%

Question 23 of 199

On examination he has cervical and axillary lymphadenopathy. There is no rash. Examination of all other systems is unremarkable.

Blood results are as follows:

Hb	14.2 g/dl
WCC	$8.5 \times 10^9/l$
Lymphocytes	$1.9 \times 10^9/l$
Platelets	$190 \times 10^9/l$
Na ⁺	139 mmol/l
K ⁺	4.1 mmol/l
Urea	6.2 mmol/l
Creatinine	120 μmol/l
Blood cultures x2	No growth in 48 h
Chest X-ray	No abnormality detected
HIV antibody test	negative

- | | |
|---|-----------------------|
| A | Lyme's disease |
| B | HIV infection |
| C | Plasmodium falciparum |
| D | Dengue fever |
| E | Typhoid infection |

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Skip Question

Back to Filters

Question 23 of 199

A 42-year-old businessman has been working in Nigeria for the last 6 months. He returned to the UK two weeks ago. He presents with a week’s history of general malaise, fever up to 38.5°C, and night sweats. In the last few days he has had some painful mouth ulcers. He has no previous medical history of note and takes no regular medication. He is married and heterosexual but does admit to intercourse with local women during his attachment. He denies any intravenous drug use.

On examination he has cervical and axillary lymphadenopathy. There is no rash. Examination of all other systems is unremarkable.

Thick and thin films for malaria are negative.

Blood results are as follows:

Hb	14.2 g/dl
WCC	8.5 x 10 ⁹ /l
Lymphocytes	1.9 x 10 ⁹ /l
Platelets	190 x 10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	4.1 mmol/l
Urea	6.2 mmol/l
Creatinine	120 mol/l
Blood cultures x2	No growth in 48 h
Chest X-ray	No abnormality detected
HIV antibody test	negative

What is the most likely diagnosis?

- A

Lyme’s disease
- B

HIV infection
- C

Plasmodium falciparum
- D

Dengue fever
- E

Typhoid infection

Explanation

This gentleman has features suggestive of HIV seroconversion illness. Working in Nigeria this gentleman was at risk of HIV infection if he had unprotected sexual intercourse while out there. It is imperative that a complete sexual history is taken as the diagnosis could have been easily missed if the patient wasn’t questioned comprehensively. In seroconversion a negative HIV antibody test does not exclude it as a diagnosis. A P24 antigen and HIV rNA-polymerase chain reaction (PCR) test would be better tests in this situation. The most prominent feature of a classical Dengue episode is a severe fever, up to 41°C, here the maximum temperature seen is 38.5°C.

6273

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Feedback

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Responses Correct:	0
Responses Incorrect:	9
Responses Total:	9
Responses - % Correct:	0%

Back to Filters

Question 24 of 199

A 34-year-old man was diagnosed with HIV infection 6 years ago. He attends the HIV walk-in clinic with an intensely pruritic rash. He is currently not taking antiretroviral therapy. He has no other medical history of note and denies any previous skin lesions. He has no allergies.

On examination there are many excoriated papules and pustules on the chest, back and extensor surfaces of the arms.

CD4 count today is 270 cells/mm³.

Which is the most likely diagnosis?



- | | |
|---|--------------------------------------|
| A | Acne vulgaris |
| B | Acne rosacea |
| C | Seborrhoeic dermatitis |
| D | Folliculitis (staphylococcal aureus) |
| E | Eosinophilic folliculitis |

6274

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Previous Question Skip Question

Calculator

Normal Values

Question 24 of 199

CD4 count today is 270 cells/mm³.



A	Acne vulgaris
B	Acne rosacea
C	Sebhorrhoeic dermatitis
D	Folliculitis (staphylococcal aureus)
E	Eosinophilic folliculitis

Eosinophilic folliculitis is the most common of the papular pruritic disorders in HIV infection. The underlying pathophysiology is unknown, on biopsy a mixed infiltrate of mainly eosinophils, with some neutrophils is seen. It presents as above and tends to occur when the CD4 count is below 300 cells/mm³. Swabs are usually negative on culture. It tends to be resistant to most treatments although HAART (highly active antiretroviral therapy) does improve it. Other treatment options include topical steroids, antihistamines, systemic antibiotics and phototherapy.

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Responses Incorrect:	10
Responses Total:	10
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Question 25 of 199

Investigations were as follows:

What is the most likely diagnosis?

100

Back to Filters

Question 25 of 199

A 29-year-old teacher is seen in the chest clinic following admission to hospital six weeks previously. At the time she presented with a six-day history of persistent increasing dyspnoea and right-sided pleuritic chest pain.

Over the last two years she has had episodes of nocturnal cough, breathlessness and sputum, usually following an upper respiratory tract infection treated by her general practitioner (GP) with antibiotics. She also has a history of dysmenorrhoea for which she takes the oral contraceptive pill.

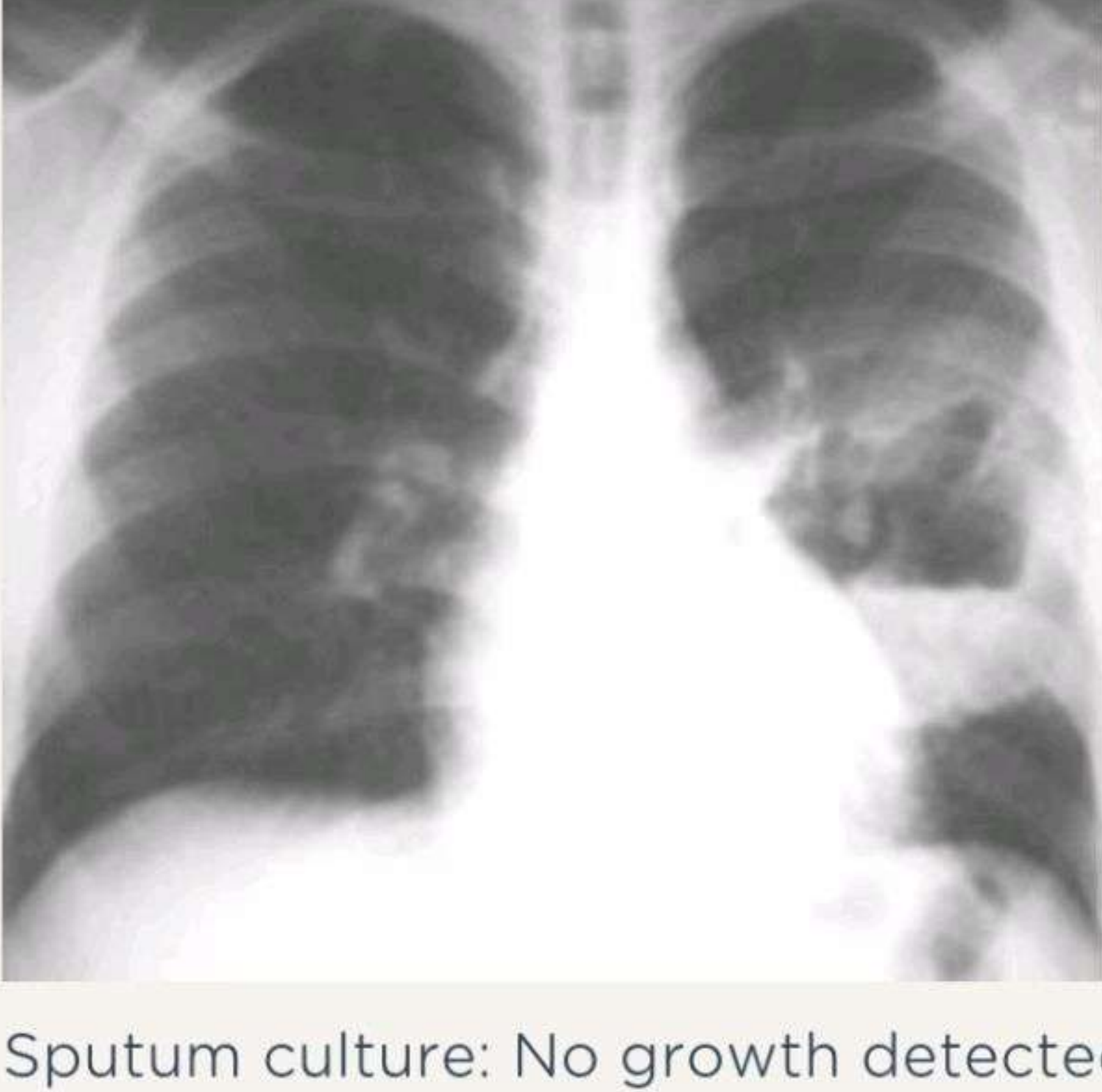
On admission her temperature was 37.6°C. She was is not cyanosed. Her blood pressure was 130/80 mmHg; pulse 100 beats/min, sinus rhythm.

Auscultation of the chest revealed bilateral expiratory and inspiratory wheeze with crackles at the right base. There was no pleural rub. Examination of all other systems was unremarkable.

Investigations were as follows:

Haemoglobin (Hb)	12.9 g/dl
White cell count (WCC)	9.6 x 10 ⁹ /l
Platelets	350 x 10 ⁹ /l
Erythrocyte sedimentation rate (ESR)	30 mm/hr
Sputum culture	No growth after 48 h
Chest X-ray	revealed shadowing at the right apex

She was commenced on oral doxycycline and regular bronchodilators. She improved but at the clinic today she tells you she has noticed specks of blood in the mucoid sputum. A chest X-ray in the clinic reveals resolution of changes in the right upper zone but there are new left-sided changes as seen in the X-ray below.



Sputum culture: No growth detected after 48 h

Hb	13.1 g/dl
WCC	14 x 10 ⁹ /l
Neutrophils	8.0 x 10 ⁹ /l
Eosinophils	0.6 x 10 ⁹ /l
Platelets	370 x 10 ⁹ /l
ESR	35 mm/hr
C-reactive protein	180 g/l

ECG is normal
Ventilation-perfusion scan shows low probability of pulmonary embolus
Serum aspergillus precipitins are positive
ANCA (anti-nuclear cytoplasmic antibody) is negative

What is the most likely diagnosis?

- A

Churg–Strauss syndrome
- B

Allergic bronchopulmonary aspergillosis
- C

Cystic fibrosis
- D

Pulmonary embolus
- E

Mycoplasma pneumonia

Explanation

This patient gives a history of episodic dyspnoea, which is often precipitated by upper respiratory infection. The physical findings are predominantly bronchospasm with bronchial asthma being the most likely diagnosis. The appearance of transient pulmonary shadowing in an asthmatic is very suggestive of allergic bronchopulmonary aspergillosis. It is characteristically associated with a blood and sputum eosinophilia and a positive skin prick test to *Aspergillus fumigatus*. The disease is due to sensitivity to *Aspergillus fumigatus* spores mediated by specific immunoglobulin (Ig)E and IgG antibodies. The fleeting chest X-ray shadows are due to intermittent obstruction of airways. It can result in proximal bronchiectasis. Early diagnosis and treatment with oral steroids can reduce the frequency of acute attacks and thus the likelihood of severe permanent lung damage.

6275

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Next Question

Previous Question	Tag Question
Feedback	End Session

Difficulty: Easy

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Responses Incorrect:	11
Responses Total:	11
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Back to Filters

Question 26 of 199

A 44-year-old company executive consults his local emergency department after returning from a business trip to France. His main complaint is of watery diarrhoea which began 24 hours before his return home.

What is the most likely cause of his diarrhoea?



- | | |
|---|------------------|
| A | Giardiasis |
| B | Amoebiasis |
| C | Salmonella typhi |
| D | Shigella |
| E | Escherichia coli |

6525

Submit

Previous Question

Skip Question

Calculator



Normal Values



Question 26 of 199

A	Giardiasis
B	Amoebiasis
C	Salmonella typhi
D	Shigella
E	Escherichia coli

Explanation

The most common cause of traveller's diarrhoea is *Escherichia coli* (40–75% of cases). This typically produces a watery diarrhoea that is self limiting, requiring supportive treatment only. *Salmonella*, amoebiasis and *Shigella* are invasive and associated with bloody diarrhoea. In addition, *Shigella* is more commonly associated with outbreaks of diarrhoea in children's daycare centres. Giardiasis is a possible alternative cause of watery diarrhoea but less likely to occur than *E. Coli* and is usually associated with additional symptoms of bloating and flatulence.

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Next Question

[Previous Question](#)

Tag Question

Feedback

End Session

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Responses Incorrect:	12
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Back to Filters

Question 27 of 199

A 26-year-old woman was admitted via ambulance, accompanied by her boyfriend. She had been complaining of a headache and nausea and over the past few hours he had noticed that she was becoming increasingly drowsy and confused.

Cerebrospinal fluid (CSF) results are shown below:

opening pressure	160 mm H ₂ O (50–180)
protein	0.33 g/l (0.15–0.45)
CSF glucose	3.7 mmol/l
blood glucose	4.9 mmol/l
CSF cell count:	16 (lymphocytes)

Magnetic resonance imaging (MRI) scan showed increased signal in both temporal lobes.

What is the most likely diagnosis?

- A

TB meningitis
- B

Cryptococcal meningitis
- C

Herpes simplex encephalitis
- D

Pneumococcal meningitis
- E

Cerebral lymphoma

6575

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 27 of 199

A 26-year-old woman was admitted via ambulance, accompanied by her boyfriend. She had been complaining of a headache and nausea and over the past few hours he had noticed that she was becoming increasingly drowsy and confused.

Cerebrospinal fluid (CSF) results are shown below:

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Magnetic resonance imaging (MRI) scan showed increased signal in both temporal lobes.

What is the most likely diagnosis?

- A

TB meningitis
- B

Cryptococcal meningitis
- C

Herpes simplex encephalitis
- D

Pneumococcal meningitis
- E

Cerebral lymphoma

Explanation

The history is suggestive of encephalitis and the CSF picture suggests possible viral infection. Low attenuation areas with surrounding oedema on imaging are particularly characteristic of herpes simplex encephalitis. Standard treatment is with intravenous aciclovir; in total aciclovir is normally given over a prolonged course of 10–14 days. Complications of herpes simplex encephalitis may include raised intracranial pressure and seizures.

6575

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Next Question

Previous Question

Tag Question

Feedback

End Session

Difficulty: Easy

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	13
Responses Total:	13
Responses - % Correct:	0%

Back to Filters

Question 28 of 199

A 22-year-old student presents for review. He complains of intense itching, predominantly affecting the web spaces on his hands and his groin area. Examination reveals excoriations and evidence of inflammatory papules.

Which of the following treatments would be standard care for this patient?

- A

Hydrocortisone cream
- B

Antihistamine tablets
- C

Antihistamine cream
- D

Permethrin lotion on the hands and groin area
- E

Permethrin lotion everywhere below the neck

6576

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 28 of 199

Which of the following treatments would be standard care for this patient?

- | | |
|---|---|
| A | Hydrocortisone cream |
| B | Antihistamine tablets |
| C | Antihistamine cream |
| D | Permethrin lotion on the hands and groin area |
| E | Permethrin lotion everywhere below the neck |

This clinical presentation is the typical history of scabies infestation. Primary scabies lesions are caused when the female mite burrows into the stratum corneum, laying eggs in the tract, which she leaves behind. They are most commonly found in the web spaces of the hands, on the wrists, buttocks, groin area, axillae and knees. Diagnosis is made via microscopic demonstration of the organism. Standard treatment includes washing of all underwear, clothes and towels used in the 48 hours before therapy, a bath and then the application of permethrin lotion to all skin areas below the neck. It should remain on the body for 8-12 hours and be repeated 1 week later.

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Responses Total:	14
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Back to Filters

Question 29 of 199

You are asked to review an 84-year-old woman who has received one week of intravenous cephalosporin antibiotics after an emergency left hip replacement. She has developed severe diarrhoea and is rapidly becoming dehydrated. Sigmoidoscopy reveals colitis.

Which of the following represents the most appropriate treatment in this case?

- A

Oral ciprofloxacin
- B

Rectal corticosteroids
- C

Oral vancomycin
- D

Vancomycin iv
- E

Ciprofloxacin iv

6639

Submit

Previous Question

Skip Question

Calculator

✔

Normal Values

✔

Back to Filters

Question 29 of 199

You are asked to review an 84-year-old woman who has received one week of intravenous cephalosporin antibiotics after an emergency left hip replacement. She has developed severe diarrhoea and is rapidly becoming dehydrated. Sigmoidoscopy reveals colitis.

Which of the following represents the most appropriate treatment in this case?

A	Oral ciprofloxacin
B	Rectal corticosteroids
C	Oral vancomycin
D	Vancomycin iv
E	Ciprofloxacin iv

Explanation

This patient has pseudomembranous colitis as a result of Clostridium difficile infection. Clostridium difficle produces two toxins, type A is an enterotoxin, type B is cytotoxic and results in bloody diarrhoea. Infection follows a period of broad-spectrum antibiotics and may range from mild diarrhoea to severe haemorrhagic colitis. Sigmoidoscopy often reveals a characteristic ‘pseudomembrane’. Treatment is with oral metronidazole or vancomycin. Clostridium difficile infection may be associated with significant mortality in an elderly population.

6639

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Next Question

Previous Question	Tag Question
Feedback	End Session

Difficulty: Average

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Session Progress	
Responses Correct:	0
Responses Incorrect:	15
Responses Total:	15
Responses - % Correct:	0%

Back to Filters

Question 30 of 199

A 39-year-old solicitor presents to her GP complaining of pain on swallowing. She says that she is also suffering from a sore throat. These symptoms have been present for about 10 days and have worsened over this time, so that even a simple drink of water causes an intense burning pain. She is a known asthmatic controlled with corticosteroid inhaler therapy only but has been otherwise well. She is on no other medication. On examination of her mouth, diffuse erythema is seen associated with white patches on the throat, soft palate and the posterior tongue.

What is the likely underlying diagnosis?

- A

Herpes simplex oesophagitis
- B

Cytomegalovirus oesophagitis
- C

Oropharyngeal candidiasis
- D

Multiple aphthous ulcers
- E

Vincent’s angina

6819

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 30 of 199

A	Herpes simplex oesophagitis
B	Cytomegalovirus oesophagitis
C	Oropharyngeal candidiasis
D	Multiple aphthous ulcers
E	Vincent's angina

Oropharyngeal candidiasis (OPC) is an opportunistic infection, with the most frequent form of the condition being known as pseudomembraneous candidiasis or thrush. This can affect the buccal mucosa, the tongue, the palate and the uvula and is characterised by white plaques that, when removed, leave an erythematous and bleeding area. Factors that promote the development of OPC include drug therapy (eg inhaled steroids, broad spectrum antibiotics, immunosuppressive therapy), certain disease conditions (diabetes mellitus, HIV, hypothyroidism), and the extremes of age (healthy neonates, premature babies, the elderly). Steroid therapy contributes to fungal infection by immune suppression by limiting both lymphocyte and granulocyte function. Vincent's angina is a pharyngeal infection with an ulcerative gingivitis from *Borrelia vincentii* and *Fusiformis fusiformis*. It was common in the first world war when it was known as 'trench mouth'.

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Responses Incorrect:	16
Responses Total:	16
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Back to Filters

Question 31 of 199

A 29-year-old student is referred to the Emergency Department by his GP complaining of abdominal pains and diarrhoea of 2 days’ duration. He had recently returned from safari and teaching English in Africa and had been relatively well during his trip. He reports no change in his diet but he reports he may have seen some blood in his stool over the past few weeks. He is otherwise fit and well.

On examination, he has a temperature of 37.5°C. His abdomen is generally tender to touch but no masses could be felt, and he has active bowel sounds. Stool cultures have been sent by his GP but the results are not yet available.

His blood profile is shown below:

Hb	13.1g/dl
WCC	12 x 10 ⁹ /l
Platelets	330 x 10 ⁹ /l
Sodium	137 mmol/l
Potassium	5.1 mmol/l
Urea	8.5 mmol/l
Creatinine	80 μmol/l

What is the most likely diagnosis?

- A

Campylobacter enterocolitis
- B

Acute ulcerative colitis
- C

Pseudomembranous colitis
- D

Amoebic dysentery
- E

Giardiasis

6820

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 31 of 199

His blood profile is shown below:

Hb	13.1g/dl
WCC	12 x 10 ⁹ /l
Platelets	330 x 10 ⁹ /l
Sodium	137 mmol/l
Potassium	5.1 mmol/l
Urea	8.5 mmol/l
Creatinine	80 μmol/l

三

- | | |
|---|-----------------------------|
| A | Campylobacter enterocolitis |
| B | Acute ulcerative colitis |
| C | Pseudomembranous colitis |
| D | Amoebic dysentery |
| E | Giardiasis |

Giardiasis does not cause bloody diarrhoea

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[Next Question](#)

[Previous Question](#)

Tag Question

Feedback

End Session

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Session Progress

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Responses Total:	17
Responses - % Correct:	0%

Question 32 of 199



Submit

Skip Question

Back to Filters

Question 32 of 199

A 15-year-old female is referred to the casualty department complaining of feeling unwell with fever, abdominal pain, reduced appetite and associated weight loss of 3–4 weeks’ duration. She reports feeling nauseous and has had occasional vomiting, but denies having diarrhoea. One month previously, she had noticed a rash on the front of her shins associated with lumps in her groin area which had settled but which had been followed by the onset of her current symptoms. Examination of her abdomen confirms generalised tenderness, especially of the right lower quadrant, but there is no hepatosplenomegaly. Bowel sounds are normal. She is apyrexial. Examination of her pharynx reveals the presence of several small ulcers. No rash was seen on her legs. She has a BCG scar on her upper arm. The referral letter from her GP states that a few months back the patient had had a Mantoux test at school which had measured 10 mm when read at 72 hours. Investigations performed on this attendance at the casualty department showed a normal CXR, normal urea & electrolytes, normal liver function tests and a normal white cell count and platelet count. Her haemoglobin level was 11.0 g/dl.

What would be the most likely diagnosis in this patient?

- A

Tuberculosis
- B

Sarcoidosis
- C

Campylobacter infection
- D

Salmonella infection
- E

Yersinia enterocolitica infection

Explanation

Yersinia enterocolitica is an important human pathogen that is capable of causing a reactive asymmetrical polyarthritits, enteritis, uveitis, appendicitis, mesenteric lymphadenitis, glomerulonephritis and septicaemica, to list a few. In this particular patient, she is suffering from mesenteric adenitis, which is characterised by fever, abdominal pain and tenderness of the right lower quadrant of the abdomen. In association, the patient may also experience nausea, vomiting and aphthous ulcers of the mouth. The symptoms may be preceded by the appearance of erythema nodosum — painful, raised red/purple lesion on the front of the shins. The gold standard for diagnosis is serology since there may be a time lag between the infection and the manifestation of clinical symptoms. This patient had a reaction to his Mantoux test, compatible with previous BCG vaccination. Campylobacter infection is characterised by a bloody diarrhoea whilst Salmonella infection typically present with diarrhoea and vomiting. The CXR tend to be abnormal in 90% of patients with sarcoidosis and the tuberculin skin test is negative in two-thirds of these patients.

6821

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Next Question

Previous Question	Tag Question
Feedback	End Session

Difficulty! Difficult

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Back to Filters

Question 33 of 199

You review a 54-year-old sailor who has spent most of his working life on ferries around the Middle East, India and Pakistan. He has an area of very odd-looking skin on his left leg that has, ‘been there for years’. On examination the lesion is dry and contains a great deal of sloughing skin.

What diagnosis fits best with this clinical picture?



- A

Chronic venous ulceration
- B

Basal-cell carcinoma
- C

Squamous-cell carcinoma
- D

Infection with Leishmania donovani
- E

Infection with Leishmania tropica minor

7038

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 33 of 199

You review a 54-year-old sailor who has spent most of his working life on ferries around the Middle East, India and Pakistan. He has an area of very odd-looking skin on his left leg that has, ‘been there for years’. On examination the lesion is dry and contains a great deal of sloughing skin.

What diagnosis fits best with this clinical picture?

A	Chronic venous ulceration
B	Basal-cell carcinoma
C	Squamous-cell carcinoma
D	Infection with Leishmania donovani
E	Infection with Leishmania tropica minor

Explanation

L.tropica minor is a cause of cutaneous leishmaniasis. Its reservoir is the dog and the primary manifestation of infection is cutaneous, with a chronic, dry lesion that only rarely ulcerates. It is mostly found in urban areas of the Middle East, Mediterranean, India, Pakistan and Africa. L. donovani causes visceral leishmaniasis. Treatment is with antimony-based drugs, though amphotericin B; ketoconazole may be used as alternatives.

7038

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Next Question

Previous Question	Tag Question
Feedback	End Session

Difficulty: Difficult

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Back to Filters

Question 34 of 199

A 78-year-old lady presents with a vesicular rash affecting her right shoulder and right upper chest, which began 24 hours earlier. It is intensely painful and she has been taking maximal paracetamol and ibuprofen tablets to no avail.

What is the management of choice in this case?

- A

Topical aciclovir
- B

Oral aciclovir
- C

Topical canesten
- D

Topical hydrocortisone
- E

Opiate based analgesia

7039

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 34 of 199

A 78-year-old lady presents with a vesicular rash affecting her right shoulder and right upper chest, which began 24 hours earlier. It is intensely painful and she has been taking maximal paracetamol and ibuprofen tablets to no avail.

What is the management of choice in this case?

- A

Topical aciclovir
- B

Oral aciclovir
- C

Topical canesten
- D

Topical hydrocortisone
- E

Opiate based analgesia

Explanation

The history and position of the rash is suggestive of shingles (herpes zoster). Due to her early presentation oral aciclovir may help shorten the duration and severity of the episode. Initiation of antiviral therapy as early as possible in the course of acute zoster, and definitely within 72 hours of onset, has been shown to be effective in alleviating acute pain and preventing postherpetic neuralgia (PHN) in most patients. For symptom relief in PHN, axsain cream (made from an extract of capsicum) may be useful for pain relief. It depletes substance P in affected neurones and is particularly effective for nerve pain.

7039

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Next Question

Previous Question	Tag Question
Feedback	End Session

Difficulty: Average

Peer Responses %

Session Progress

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Back to Filters

Question 35 of 199

A 42-year-old gay man presents for review with sudden loss of vision in his left eye. He has a past history of hypertension but appears otherwise well. Fundoscopy reveals extensive haemorrhages and exudates. Blood tests reveal a CD4 count of 85. Which of the following represents the best initial treatment in this case?

- A Aspirin
- B Ganciclovir iv
- C Aciclovir iv
- D Heparin iv
- E Warfarin

7040

Submit

Previous Question Skip Question

Calculator 

Normal Values 

Back to Filters

Question 35 of 199

A 42-year-old gay man presents for review with sudden loss of vision in his left eye. He has a past history of hypertension but appears otherwise well. Fundoscopy reveals extensive haemorrhages and exudates. Blood tests reveal a CD4 count of 85.

Which of the following represents the best initial treatment in this case?

- | | |
|---|----------------|
| A | Aspirin |
| B | Ganciclovir iv |
| C | Aciclovir iv |
| D | Heparin iv |
| E | Warfarin |

Explanation

This patient has cytomegalovirus (CMV) retinitis, he is probably HIV positive, associated with his reduced CD4 count and this has resulted in his cytomegalovirus (CMV) infection. It is the most common cause of eye disease and blindness in HIV patients. CMV retinitis is a slowly progressive disorder; visual loss may occur suddenly as a result of haemorrhage or retinal detachment, or more slowly due to progressive involvement of the macula and optic nerve. Patients should be treated with IV ganciclovir at a dose of 10 mg/kg/day for at least 3 weeks or until retinitis is quiescent. Ganciclovir is myelosuppressive and full blood count should be monitored during therapy.

7040

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Next Question

- | | |
|-------------------|--------------|
| Previous Question | Tag Question |
| Feedback | End Session |

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Back to Filters

Question 36 of 199

A 58-year-old sheep farmer presents for review with a history of malaise, headache, fever, night sweats, back pain and myalgia. There is lymphadenopathy and hepatosplenomegaly on examination. Full blood count reveals a leucoerythroblastic picture with raised transaminases on liver function testing. Clotting is normal. X-ray of his lumbar spine reveals degenerative changes with osteophyte formation.

What diagnosis fits best with this clinical picture?

- A Chronic myeloid leukaemia (CML)
- B Acute myelocytic leukaemia (AML)
- C Hydatid disease
- D Brucellosis
- E Organophosphate poisoning

7041

Submit

Previous Question Skip Question

Calculator

Normal Values

Question 36 of 199

11

A	Chronic myeloid leukaemia (CML)
B	Acute myelocytic leukaemia (AML)
C	Hydatid disease
D	Brucellosis
E	Organophosphate poisoning

Brucellosis has been virtually eliminated from the UK, though isolated cases do still rarely occur. The incubation period of brucellosis is 1-3 weeks, onset is insidious with malaise, headache, weakness, generalised myalgia and night sweats. Chronic infection may lead to the features seen in this case including degenerative changes on spinal x-ray. Diagnosis is via bone marrow culture or the brucella agglutination test. Treatment is with combination doxycycline and rifampicin therapy.

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Next Question

Previous Question

Tag Question

Feedback

End Session

End Session

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Session Progress

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Responses Total:	22
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Back to Filters

Question 37 of 199

A 40-year-old single South African man has returned from a trip to his home country. He has felt unwell with fever, arthralgia, myalgia and lethargy; there are also mucosal ulcers. Blood testing reveals relative lymphopenia with atypical reactive lymphocytes, thrombocytopenia and raised liver enzymes. The CD4/CD8 ratio is reversed. Antibodies to HIV are negative.



Which diagnosis fits best with this clinical picture?

- | | |
|---|------------------------------|
| A | Epstein-Barr virus infection |
| B | Hepatitis C |
| C | Hepatitis B |
| D | Cytomegalovirus infection |
| E | HIV infection |

7042

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Question 37 of 199

A	Epstein-Barr virus infection
B	Hepatitis C
C	Hepatitis B
D	Cytomegalovirus infection
E	HIV infection

Laboratory abnormalities seen with acute HIV infection include lymphopenia with atypical lymphocytes noted on blood film, thrombocytopenia and raised liver enzymes. CD4 lymphocytes may be markedly depleted. Antibodies to HIV may be negative at this stage, though circulating viral RNA is high and p24 core proteins may be detectable.

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Next Question

Tag Question

End Session

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Responses Incorrect:	23
Responses Total:	23
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Back to Filters

Question 38 of 199

A 68-year-old organic farmer presents for review. He has been feeling unwell for two or three weeks, complaining of fever, malaise and a dry cough. On examination he was pyrexial 38.4 °C with an ejection systolic murmur. Abdominal palpitation reveals evidence of hepatomegaly. Liver function testing revealed raised transaminases. Serial blood cultures were negative and echocardiogram confirmed the presence of vegetations.



What diagnosis fits best with this clinical picture?

- | | |
|---|-----------------------------|
| A | Libman–Sacks endocarditis |
| B | Coxiella endocarditis |
| C | Streptococcal endocarditis |
| D | Staphylococcal endocarditis |
| E | Fungal endocarditis |

7043

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Question 38 of 199

11

A	Libman-Sacks endocarditis
B	Coxiella endocarditis
C	Streptococcal endocarditis
D	Staphylococcal endocarditis
E	Fungal endocarditis

Coxiella infection is widespread in domestic and farm animals, it usually spreads between animals by ticks which act as reservoirs of infection. Infection may be spread via unpasteurised milk, the probable mode of infection here. There is fever and malaise, which may progress to pneumonia, hepatitis or in rare cases to culture negative endocarditis. Coxiella is usually diagnosed via complement fixation and standard treatment is with doxycycline.

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Previous Question

Tag Question

Feedback

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Responses Correct:	0
Responses Incorrect:	24
Responses Total:	24
Responses - % Correct:	0%

Back to Filters

Question 39 of 199

A 25-year-old woman presents to the Emergency Department with abdominal pain and vomiting for the last 24 hours. She has opened her bowels that morning. There is vaginal discharge and tenderness on vaginal examination and anteriorly on rectal examination. Abdominal pain is predominantly central and lower. Blood pressure (BP) is 140/80 mmHg, temperature is 37.9°C

Which diagnosis best fits with this clinical picture?

- | | |
|---|----------------------------|
| A | Inflammatory bowel disease |
| B | Acute appendicitis |
| C | Acute salpingitis |
| D | Ruptured ovarian cyst |
| E | Generalised peritonitis |

7044

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Back to Filters

Question 39 of 199

A 25-year-old woman presents to the Emergency Department with abdominal pain and vomiting for the last 24 hours. She has opened her bowels that morning. There is vaginal discharge and tenderness on vaginal examination and anteriorly on rectal examination. Abdominal pain is predominantly central and lower. Blood pressure (BP) is 140/80 mmHg, temperature is 37.9°C

Which diagnosis best fits with this clinical picture?

- | | |
|---|----------------------------|
| A | Inflammatory bowel disease |
| B | Acute appendicitis |
| C | Acute salpingitis |
| D | Ruptured ovarian cyst |
| E | Generalised peritonitis |

Explanation

Most cases are usually associated with sexually transmitted infection. Patients present with low abdominal pain, a fever and vaginal discharge. The Fitz-Hughes-Curtis syndrome associated with Chlamydia infection is caused by infection tracking up the right paracolic gutter to cause a perihepatitis. These patients may also have right hypochondrial pain, fever and mild elevations in liver biochemistry. The distribution of the abdominal pain, and the fact that she has recently opened her bowels makes the other options such as acute appendicitis or ruptured ovarian cyst less likely.

7044

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Next Question

Previous Question	Tag Question
Feedback	End Session

Difficulty: Average

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Session Progress

Responses Correct:	0
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Responses Total:	25
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Back to Filters

Question 40 of 199

A 37-year-old Mexican is seen in the Emergency Department with a 1 month history of dizziness and unsteady gait. He was visiting his family, who were concerned, and so he came to the emergency department. They tell you that he has been slightly strange since he came to visit and seems depressed and tired. He has been complaining about back pain and constipation. He is a non-smoker and does not take drugs. He works on a cattle ranch in Mexico.

On examination, he is febrile 38.1°C, his pulse is 85/min and blood pressure 90/50 mmHg. He is fully alert but he appears confused. On abdominal palpation you find hepatosplenomegaly and on neurological examination he has an unsteady gait and generalised hypotonia.

Blood results are:

White cell count (WCC)	3.6 × 10 ⁹ /l
Neutrophils	1.9 × 10 ⁹ /l
Platelets	48 × 10 ⁹ /l
Lactate dehydrogenase (LDH)	1250 U/l (10–250)
Thyroid-stimulating hormone (TSH)	1.2mU/l (0.4–5)
Thyroxine (fT ₄)	16.3 pmol/l (10–22)
Alanine aminotransferase	61U/l
Alkaline phosphatase	165U/l
Bilirubin	18 mol/l
Erythrocyte sedimentation rate (ESR)	102 mm/h
Blood cultures at 5 days	No growth
Chest X-ray	Normal
Computerised tomography (CT) of the brain	Normal

What is the most likely diagnosis?

- A

Tuberculosis
- B

Nocardiosis
- C

Melioidosis
- D

Brucellosis
- E

Histoplasmosis

7230

Submit

Previous Question

Skip Question

Calculator



Normal Values



Back to Filters

Question 40 of 199

A 37-year-old Mexican is seen in the Emergency Department with a 1 month history of dizziness and unsteady gait. He was visiting his family, who were concerned, and so he came to the emergency department. They tell you that he has been slightly strange since he came to visit and seems depressed and tired. He has been complaining about back pain and constipation. He is a non-smoker and does not take drugs. He works on a cattle ranch in Mexico.

On examination, he is febrile 38.1°C, his pulse is 85/min and blood pressure 90/50 mmHg. He is fully alert but he appears confused. On abdominal palpation you find hepatosplenomegaly and on neurological examination he has an unsteady gait and generalised hypotonia.

Blood results are:

White cell count (WCC)	3.6 × 10 ⁹ /l
Neutrophils	1.9 × 10 ⁹ /l
Platelets	48 × 10 ⁹ /l
Lactate dehydrogenase (LDH)	1250 U/l (10-250)
Thyroid-stimulating hormone (TSH)	1.2mU/l (0.4-5)
Thyroxine (fT ₄)	16.3 pmol/l (10-22)
Alanine aminotransferase	61U/l
Alkaline phosphatase	165U/l
Bilirubin	18 mol/l
Erythrocyte sedimentation rate (ESR)	102 mm/h
Blood cultures at 5 days	No growth
Chest X-ray	Normal
Computerised tomography (CT) of the brain	Normal

What is the most likely diagnosis?

- A

Tuberculosis
- B

Nocardiosis
- C

Melioidosis
- D

Brucellosis
- E

Histoplasmosis

Explanation

This patient has brucellosis. The clue is the history of working with cattle in Mexico where this infection is endemic. Brucella is a small slow-growing intracellular organism which histopathologically causes a chronic granulomatous disease. The presentation is varied but includes bone pain, neuropsychiatric symptoms and a pyrexia of unknown origin (PUO). Hepatosplenomegaly and bone marrow suppression are also found.

The test of choice is bone marrow aspiration and culture. Blood cultures often require four or more weeks of incubation. Serum agglutination as first described by Bruce remains popular for diagnosis. Treatment includes 6 weeks of doxycycline with streptomycin or rifampicin. Quinolones are now also used. Treatment failure due to inadequate duration of therapy often leaves patients with chronic disease.

7230

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Back to Filters

Question 41 of 199

A 22-year-old female is referred to your Neurology Outpatients Clinic by the general practitioner (GP) as she is not able to smile. She has been generally unwell for about a month and has had malaise, a runny nose and muscle ache. She also noticed a rash on her arm about a month ago but this has now cleared up. She is studying for her masters at Yale in Connecticut, does not drink, smoke, or take drugs.

On examination her pulse is 48/min in sinus rhythm. She has no lymphadenopathy and her chest is clear. Heart sounds are normal. There is evidence of a bilateral VIIth nerve palsy, but the remainder of the neurological examination is normal. You also notice her right knee is swollen but she feels she must have fallen on it.

Blood results are:

Haemoglobin (Hb)	13.8 g/dl
White cell count (WCC)	11.2 × 10 ⁹ /l
Lymphocytes	5.6 × 10 ⁹ /l
Platelets	335 × 10 ⁹ /l

Electrocardiogram (ECG) shows sinus bradycardia.

Chest X-ray is normal.

What is the most appropriate treatment?

- A

Oral prednisolone
- B

Intravenous hydrocortisone
- C

Doxycycline
- D

Aspirin
- E

Aciclovir and prednisolone

7231

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 41 of 199

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- A

Oral prednisolone
- B

Intravenous hydrocortisone
- C

Doxycycline
- D

Aspirin
- E

Aciclovir and prednisolone

Explanation

This patient has Lyme disease. Lyme disease is an infectious illness caused by the bacterium *Borrelia burgdorferi*. It is transmitted mainly through tick bites. It is very common in Connecticut where it was given its name when it infected a large group of children in Lyme.

It initially presents with a slowly expanding skin lesion around the tick bite, erythemamigrans, malaise and joint aches. If not treated, neurological, cardiological and joint involvement can occur. The treatment of choice in those aged over 8 years and non-pregnant females is a 2-3 week course of doxycycline.

Bilateral facial weakness can occur with Lyme disease, myasthenia gravis, sarcoidosis and bilateral Bell’s palsy.

7231

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Question 42 of 199

On examination, she exhibits meningism and photophobia. She is jaundiced and is pyrexial with a temperature of 38.7°C. She has no rash but has bilateral subconjunctival haemorrhage and has pharyngeal injection and enlarged tonsillar lymph nodes. Her heart rate is 120/min, blood pressure 90/62 mmHg. She has hepatosplenomegaly on abdominal examination. Computerised tomography (CT) of the head is normal.

White cell count (WCC)	42/ml (<5) (PMN leucocytes 36)
Protein	0.54 g/l (0.15-0.45)
Glucose	3.8mmol/l (3.3-4.4)



Urea	16.3 mmol/l
Creatinine	215 μmol/l
Alanine aminotransferase	198 U/l
Alkaline phosphatase	168 U/l
Bilirubin	98 μmol/l
Glucose	5.6 mmol/l
White cell count (WCC)	$20.3 \times 10^9/l$

What is the most likely diagnosis?

A	Meningococcal septicaemia
B	Mollaret's meningitis
C	Streptococcal meningitis
D	Leptospirosis
E	Melioidosis

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Skip Question

Question 42 of 199

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What is the most likely diagnosis?

- | | |
|---|---------------------------|
| A | Meningococcal septicaemia |
| B | Mollaret's meningitis |
| C | Streptococcal meningitis |
| D | Leptospirosis |
| E | Melioidosis |

Leptospirosis is caused by pathogenic spiral bacteria belonging to the genus *Leptospira*. The disease is more prevalent in tropical climates and those with a heavy rainfall. In the developed world it has become associated with recreational watersports and those exposed to raw sewage.

The disease incubates for 7-12 days and many patients never present with clinical features. The first phase is known as the septicaemic or leptospiraemic phase, as the leptospira can be cultured in the blood and cerebrospinal fluid (CSF). In this phase, patients often have flu-like symptoms. The patient usually then feels better for 3 days before developing the immune or leptospiruric stage because circulating antibodies may be detected or the organism may be isolated from urine. However, it may not be cultured from blood or CSF. In this phase, patients often present with aseptic meningitis, haemorrhagic shock or renal failure.

Treatment includes supportive management. Doxycycline and penicillin are both reasonable choices for antimicrobial therapy.

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[Next Question](#)

[Previous Question](#)

Tag Question

Feedback

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Back to Filters

Question 43 of 199

A 37-year-old lady presents with a 2 week history of increasing breathlessness, dry cough and joint swelling. She has a painful left ear and when she breathes in she has sharp stabbing pains on the right side of her chest. She is also concerned about a rash that has started on both her arms and legs which burns her, but is not itchy. She smokes 20 cigarettes a day and her mother died of lung cancer at the age of 43 years. On examination, she is febrile, with a temperature of 37.8°C, respiration rate 20/min on exertion and her saturation is 94% on room air. She has symmetrical, mucocutaneous lesions, with concentric colour changes in most lesions. She has an erythematous left ear and occipital lymphadenopathy. She has coarse inspiratory crackles in the right lung mid-zone.

Blood results are as follows:

WCC	16.2 x 10 ⁹ /l
Hb	9.3 g/dl
MCV	84.6 fl
Na ⁺	131 mmol/l
Urea	6.3 mmol/l
Creatinine	93 micromol/l
ALT	135 U/l

What is the most likely diagnosis?

- A

Influenza A
- B

Small cell lung cancer
- C

Tuberculosis
- D

Sarcoidosis
- E

Mycoplasma pneumonia

7233

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 43 of 199

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MCV	84.6 fl
Na ⁺	131 mmol/l
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Creatinine	93 micromol/l
ALT	135 U/l

What is the most likely diagnosis?

- A

Influenza A
- B

Small cell lung cancer
- C

Tuberculosis
- D

Sarcoidosis
- E

Mycoplasma pneumonia

Explanation

This lady has a typical history for mycoplasma pneumonia, the onset of which occurs over 1-3 weeks, often with a dry cough and fever. It is associated with bullous myringitis and erythema multiforme. She has a low haemoglobin which points to mycoplasma pneumonia, as it is associated with an autoimmune haemolytic anaemia due to the presence of anti-I antibody. The treatment of choice is a macrolide antibiotic.

7233

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Question 44 of 199

Bloods results are:

A	Dengue fever
B	Ehrlichiosis
C	Lyme disease
D	Rocky Mountain spotted fever
E	Syphilis

Skip Question

Question 44 of 199

On examination, he is febrile, with a temperature of 38.1°C and appears slightly agitated. He has a maculopapular eruption over his arms and legs, including a rash over the palms of his hands and soles of his feet. His pulse is 60/min and heart sounds are normal. His chest is clear but he is tender in the right upper quadrant. There is no meningism and neurology is normal.

White cell count (WCC)	$3.4 \times 10^9/\text{l}$
Platelets	$75 \times 10^9/\text{l}$
Haemoglobin(Hb)	12.1 g/dl
Albumin	34 g/l
Na+	131 mmol/l
K+	3.9 mmol/l
Urea	5.6 mmol/l
Creatinine	105 $\mu\text{mol/l}$
Alanine amino transferase	101 U/l
Bilirubin	34 $\mu\text{mol/l}$
Chest X-ray is normal	

A	Dengue fever
B	Ehrlichiosis
C	Lyme disease
D	Rocky Mountain spotted fever
E	Syphilis

Rocky Mountain spotted fever (RMSF) is a tick-borne disease caused by the organism *Rickettsia rickettsii*. RMSF can be lethal. Physicians must maintain a high index of suspicion for RMSF in patients who are febrile as it is essentially a clinical diagnosis. Key aspects include history of potential tick exposure, travel to an endemic area and presentation in the spring or autumn.

For adults, the preferred drug of choice is doxycycline. Chloramphenicol is an alternative.

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Question 45 of 199

On examination, he is jaundiced looks unwell, is slightly confused and has a temperature of 38.7°C. He has no lymphadenopathy. His pulse is 120/min and regular and blood pressure 95/60 mmHg. His chest is clear and his abdomen is soft but non-specifically tender. He has no neurology.

Haemoglobin (Hb)	7.1 g/dl
Mean corpuscular volume (MCV)	80.2 fl
White cell count (WCC)	$11.3 \times 10^9/l$
Platelets	$97 \times 10^9/l$
Na ⁺	132 mmol/l
K ⁺	5.1 mmol/l
Urea	16.3 mmol/l
Creatinine	189 μmol/l
C-reactive protein (CRP)	213 mg/l
Serum electrophoresis	shows polyclonal hypergammaglobulinaemia
Chest X-ray	clear
Urinalysis	shows haemoglobinuria

-
-
-

- | | |
|---|---------------------------|
| A | Babesiosis |
| B | Perforated duodenal ulcer |
| C | Lyme Disease |
| D | Malaria |
| E | Nocardiosis |

Submit

Skip Question

Back to Filters

Question 45 of 199

A 63-year-old man is seen in the emergency department with a 2 week history of increasing fatigue, fever and rigors. The fever appears to come on every few days. He has recently come back from Long Island where he stayed with family. He remembers that he sustained several bites but the local erythema had now settled. He has a history of hypertension and he had his spleen removed following a road traffic accident 12 years ago. He is taking aspirin, an angiotensin-converting enzyme (ACE) inhibitor and penicillin V. He is a non-smoker.

On examination, he is jaundiced looks unwell, is slightly confused and has a temperature of 38.7°C. He has no lymphadenopathy. His pulse is 120/min and regular and blood pressure 95/60 mmHg. His chest is clear and his abdomen is soft but non-specifically tender. He has no neurology.

Blood results are as follows:

Haemoglobin (Hb)	7.1 g/dl
Mean corpuscular volume (MCV)	80.2 fl
White cell count (WCC)	11.3 × 10 ⁹ /l
Platelets	97 × 10 ⁹ /l
Na ⁺	132 mmol/l
K ⁺	5.1 mmol/l
Urea	16.3 mmol/l
Creatinine	189 mol/l
C-reactive protein (CRP)	213 g/l
Serum electrophoresis	shows polyclonal hypergammaglobulinaemia
Chest X-ray	clear
Urinalysis	shows haemoglobinuria

What is the most likely diagnosis?

- A

Babesiosis
- B

Perforated duodenal ulcer
- C

Lyme Disease
- D

Malaria
- E

Nocardiosis

Explanation

Babesiosis is a tick-borne malaria-like illness caused by species of the intraerythrocytic protozoan Babesia. Patients present with similar symptoms to malaria, i.e. fever, chills and rigors. The intraerythrocytic Babesia destroy the red blood cells causing haemolytic anaemia, and haemoglobinuria. Symptoms are greater with a higher percentage of parasitism. A B-lymphocyte response is elicited with a secondary reactive polyclonal hypergammaglobulinemia Babesiosis is frequent in endemic areas of the USA, particularly Long Island, New York, and Nantucket and Martha's Vineyard, Massachusetts.

Patients without a spleen have a more fulminant and prolonged clinical course and may have overwhelming infection and a fatal outcome.

Babesiosis is often a clinical diagnosis and the history of a recent trip to Long Island and being bitten should differentiate this from malaria. In addition, patients with malaria often have a more pronounced headache. Lyme disease does not cause haemolytic anaemia, and nocardiosis is only fulminant in the immunocompromised.

7235

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Back to Filters

Question 46 of 199

A 31-year-old female is seen in neurology outpatients with a 4 month history of poor concentration, memory loss and increasing clumsiness. Her partner tells you she has fallen three times in the last few weeks and that she now needs help doing up her laces. She has been incontinent of urine over the last 2 weeks. She is originally from Somalia and came to the UK 5 years ago.

On examination, she is cachectic and appears agitated. She has an ataxic gait. She has generalised motor weakness, hyperreflexia and has upgoing plantars bilaterally. There appear to be a number of small skin tumours present on general inspection.

Cerebrospinal fluid (CSF) results are as follows:

Protein	0.35 g/l (0.15-0.45)
White cell count (WCC)	1/ml (<5)
Red blood cells (RBC)	0/ml (<5)
Glucose	5.3 mmol/l (3.3-4.4)

Computerised tomography (CT) of the brain shows cerebral atrophy with wide sulci. Magnetic resonance imaging (MRI) of the brain shows gross white matter abnormalities, particularly in the periventricular area.

What is the most likely diagnosis?

- A

Herpes simplex encephalitis
- B

HIV encephalopathy
- C

West Nile encephalitis
- D

Progressive multifocal leucoencephalopathy
- E

Normal pressure hydrocephalus

7236

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 46 of 199

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What is the most likely diagnosis?



- A

Herpes simplex encephalitis
- B

HIV encephalopathy
- C

West Nile encephalitis
- D

Progressive multifocal leucoencephalopathy
- E

Normal pressure hydrocephalus

Explanation

This lady who has come from Somalia is likely to have undiagnosed AIDS. HIV encephalopathy (also called AIDS–dementia complex) comes on over a period of months with cognitive dysfunction, behavioural and motor abnormalities. Typically the presentation is of diffuse subcortical dementia, and poor balance, poor co-ordination, an ataxic gait and generalised motor weakness and diffuse hyperreflexia are often found. Patients become incontinent and develop seizures.

There is no preceding history or epidemiological link to suggest West Nile encephalitis or herpes simplex and the time frame is too long. Progressive multifocal leucoencephalopathy typically includes a much more focal neurological presentation (e.g. hemiparesis, aphasia or ataxia) and magnetic resonance imaging (MRI) shows multiple non-enhancing white matter lesions, typically at the grey-white matter interface, without mass effect. The JC virus can usually be isolated on polymerase chain reaction (PCR) of the cerebrospinal fluid (CSF) in PML, and antibodies to JC virus may also be demonstrated, thus being another means of distinguishing between HIV encephalopathy and PML.

HIV encephalopathy can be prevented by successful highly active antiretroviral therapy (HAART). Once the encephalopathy occurs however, reversibility with HAART is variable. Normal pressure hydrocephalus occurs almost exclusively in elderly patients; in addition the clinical course is very slowly progressive over many months and years. It would therefore be highly unlikely here.

7236

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Next Question

- Previous Question

Feedback
- Tag Question

End Session

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Question 47 of 199

Blood results are as follows:

Blood cultures are negative at 5 days.

What is the most likely diagnosis?

Submit

[Previous Question](#)

Skip Question

Calculator

Normal Values

Back to Filters

Question 47 of 199

While working on a relief effort after a natural disaster, a 29-year-old Asian male presents with a 10 day history of fever, rigors, night sweats, myalgia and headache. He has a cough productive of green sputum with occasional flecks of fresh red blood, and right-sided pleuritic chest pain. He had been swept up in the tidal wave and swept approximately 1 mile. He had suffered lacerations to both shins and heavy bruising to his chest. He admitted that he had swallowed seawater. He is a type 1 diabetic on insulin.

On examination, he is febrile, with a temperature of 39.2°C and has a pulse of 110/min. His blood pressure is 120/8 0mmHg and respiratory rate 24/min. His saturation on room air is 93%. He has a pustular eruption over both shins and cervical and inguinal lymphadenopathy. On chest percussion there is a stony dullness over the right base, and on chest auscultation, he has bronchial breathing over the right mid-zone and no air entry at the right base.

Chest X-ray shows pleural effusion at the right base, with consolidation and a lung cavity in the right mid-zone. There is diffuse shadowing at the left base.

Blood results are as follows:

Urea	10.1 mmol/l
Creatinine	141 micromol/l
Bilirubin	34 micromol/l
ALT	124 U/l
ALP	158 U/l
Albumin	33 g/l
CRP	287 microg/l
WCC	13.3 x10 ⁹ /l
Hb	10.2 g/dl
PLT	536 x10 ⁹ /l

Blood cultures are negative at 5 days.

What is the most likely diagnosis?



A	Mycoplasma pneumonia
B	Actinomycosis
C	Tuberculosis
D	Melioidosis
E	Streptococcal pneumonia

Explanation

Burkholderia pseudomallei, the organism that causes melioidosis is endemic in Thailand. When bacteria are aerosolised and enter the respiratory tract via inhalation or hematogenous spread, pulmonary infections occur presenting with pneumonia, pulmonary abscesses, and pleural effusions. The incubation period is 10-14 days. During a natural disaster, ingestion of contaminated water and inhalation of dust contaminated with the organism can occur. The history is similar to that of other cavitating lung lesions and the diagnosis should be thought about primarily because of the location and public events prior to the presentation.

Treatment for pulmonary melioidosis includes intravenous ceftazidime or meropenem for 2 weeks along with co-trimoxazole for 2 weeks. Recurrences do occur.

7237

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Back to Filters

Question 48 of 199

A 41-year-old lady is seen in the emergency department with a 3 week history of increasing breathlessness. She has a non-productive cough and has been feeling hot and cold. She feels fine at rest but after walking 10 yards she becomes dyspnoeic. She has suffered from rheumatoid arthritis for 10 years and she is currently taking methotrexate, folic acid and prednisolone. She had a flare 4 months ago which required a course of etarnecept. She is a non-smoker.

On examination, she is afebrile and comfortable at rest. She has candida of the tongue. Her respiratory rate is 20/min at rest, but on transferring from a chair to bed increases to 28/min. Saturations on room air are 92%. You ask her to take a few steps across the room and her saturation drops. Her heart sounds are normal and chest is clear.

Chest X-ray shows bilateral, perihilar interstitial infiltrates.

Blood results are as follows:

White cell count (WCC)	3.2 × 10 ⁹ /l
Haemoglobin (Hb)	9.8 g/dl
Mean corpuscular volume (MCV)	85.6 fl
Platelets	142 × 10 ⁹ /l

What is the most likely diagnosis?

- A

Tuberculosis
- B

Sarcoidosis
- C

Pneumocystis jirovecii
- D

Histoplasma capsulatum
- E

Rheumatoid lung disease

7238

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 48 of 199

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What is the most likely diagnosis?



- A

Tuberculosis
- B

Sarcoidosis
- C

Pneumocystis jirovecii
- D

Histoplasma capsulatum
- E

Rheumatoid lung disease

Explanation

Given this patient’s recent treatment with etarnecept and now the use of methotrexate and prednisolone she is immunosuppressed. She has a classic history and X-ray changes consistent with Pneumocystis jirovecii. Diagnosis is usually confirmed with cytological examination of bronchoalveolar lavage fluid although this is not always necessary. First-line treatment includes high-dose co-trimoxazole.

7238

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Next Question

Previous Question

Feedback

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Responses Total:	34
Responses - % Correct:	0%

Back to Filters

Question 49 of 199

You see a previously well 56-year-old Asian gentleman referred by his general practitioner (GP) with a 5 week history of abdominal pain, weight loss, night sweats and fever. He returned 6 weeks ago from Pakistan where he spends half the year. The pain is colicky and generalised and is not associated with meals or relieved by defecation. He has no vomiting or recent change in bowel habit, nor noticed per rectum (PR) bleeding or melaena. On examination he is wearing loose clothes and is afebrile. His abdomen is soft but tender in the right lower quadrant. He has an abdominal ultrasound scan, which reports the presence of a stone in the gall bladder, but otherwise a normal scan.

Oesophageo-gastro-duodenoscopy (OGD) is normal. Barium enema shows narrowing of the terminal ileum.

What is the most likely diagnosis?



- | | |
|---|--------------------|
| A | Ulcerative colitis |
| B | Carcinoid syndrome |
| C | Crohn’s disease |
| D | Tuberculosis |
| E | Caecal cancer |

7239

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Back to Filters

Question 49 of 199

You see a previously well 56-year-old Asian gentleman referred by his general practitioner (GP) with a 5 week history of abdominal pain, weight loss, night sweats and fever. He returned 6 weeks ago from Pakistan where he spends half the year. The pain is colicky and generalised and is not associated with meals or relieved by defecation. He has no vomiting or recent change in bowel habit, nor noticed per rectum (PR) bleeding or melaena. On examination he is wearing loose clothes and is afebrile. His abdomen is soft but tender in the right lower quadrant. He has an abdominal ultrasound scan, which reports the presence of a stone in the gall bladder, but otherwise a normal scan.

Oesophageo-gastro-duodenoscopy (OGD) is normal.
Barium enema shows narrowing of the terminal ileum.







What is the most likely diagnosis?

A	Ulcerative colitis
B	Carcinoid syndrome
C	Crohn’s disease
D	Tuberculosis
E	Caecal cancer

Explanation

This man’s history of being in Pakistan recently and the rapid onset of weight loss, fever and night sweats makes it likely that he has tuberculosis (TB). Although Crohn’s disease often presents with terminal ileal disease he has no history of diarrhoea. Caecal cancer is possible, but the history is more suggestive of TB. Treatment is as for pulmonary TB. In those who are not drug resistant the standard therapy is of isoniazid, rifampicin, pyrazinamide and ethambutol for 2 months, followed by 4 months of isoniazid and rifampicin. Therapy should be guided by a TB specialist.

7239

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Responses - % Correct:	0%

Back to Filters

Question 50 of 199

A 37-year-old lady is seen in clinic with a 1-month history of malaise, tiredness, chest pain and breathlessness on walking up the stairs. You establish that she has not felt well for about 6 months since returning from Puerto Rico. She went fresh-water swimming there and often walked barefoot. She boiled her water but occasionally dined out on local delicacies. She developed an itch of both feet shortly after returning and noticed a rash, which responded to cream prescribed by her doctor. A week later, she had an episode of dyspnoea and wheeze, which her general practitioner (GP) told her was asthma and she felt better with salbutamol. About 3 months ago she had abdominal pain, nausea and diarrhoea, which settled after a few weeks. On examination, she looks pale but there is no clubbing or lymphadenopathy. She is tachycardic at 104 bpm but her heart sounds are normal. Chest exam reveals scattered wheeze. Her abdomen is soft and her per rectum (PR) examination is normal.

Chest X-ray reveals small bilateral pleural effusions.

Blood results are as follows:

WCC	6.5 × 10 ⁹ /l
Hb	76 g/l
PLT	532 × 10 ⁹ /l
Albumin	31 g/l
C-reactive protein (CRP)	6 mg/l

What is the most likely diagnosis?

- A

Dilated cardiomyopathy
- B

Polyarteritis nodosa
- C

Colonic carcinoma
- D

Hookworm infection
- E

Schistosomiasis

7240

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Question 50 of 199

1

Blood results are as follows:

What is the most likely diagnosis?

- Explanation ⚙

- Necator americanus*. This patient has a history consistent with hookworm infection. Hookworm is endemic in the Americas, south-east Asia, India and Africa. The worms often get in through the feet and cause an intense local rash. After about a week they move through the lung causing wheezing and cough and then they migrate to the intestine where they become adults and start laying eggs. With heavy infection the patient may have an episode of abdominal pain, nausea, diarrhoea and anorexia. This patient has experienced all of these symptoms. The examination findings are consistent with pulmonary infiltration, and the pallor and tachycardia can be explained by anaemia. Hookworms cause anaemia by attachment to the upper gastrointestinal mucosa leading to chronic bleeding and iron deficiency. After 8-12 weeks the hookworm eggs are present in the faeces and the isolation of these is the investigation of choice. Anthelmintic drugs effective against hookworms include albendazole, mebendazole and thiabendazole, as well as ivermectin.

- It can present with shortness of breath and chest pain, but it does not explain many of the respiratory or abdominal aspects of the history or examination, nor the anaemia. Also, it is commonly associated with a family history of sudden death as that may be the first presentation and it is inherited in an autosomal-dominant fashion.

- into systemic features and have gastrointestinal features and also cause anaemia, one would expect a raised WCC and CRP. It is also associated with hepatitis B and twice as common in men than women.

- E Schistosomiasis

- It would not explain her respiratory symptoms or findings. Schistosomiasis in the Americas is caused by *Schistosoma mansoni* and this species causes abdominal pain, diarrhoea and vomiting, and then progresses to hepatic symptoms and findings. African causes of schistosomiasis can have pulmonary infiltration.

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[Previous Question](#)

Tag Question

Feedback

End Session

Difficulty: Average

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Back to Filters

Question 51 of 199

A 31-year-old man is seen in the Emergency Department with right upper quadrant tenderness and bloody diarrhoea. He has been unwell since returning from a period supervising a 1-year Operation Raleigh expedition to Brazil. This was one of a number of trips to South America. While there, he took part in watersports and went fresh-water swimming. He visited the jungles and was bitten by the occasional insect. He was always careful however with what he ate and drank. He had night sweats and fever for 1 week, with headache, a non-productive cough and arthralgia. He smokes 40 cigarettes/day and drinks heavily on the weekend. He admitted to having casual unprotected sex with some of the local women.

On examination, his temperature is 38.1°C and his pulse 110 bpm. He has cervical and inguinal lymphadenopathy. His chest is clear but he has a large liver, which measures 10 cm below the right costal margin, and a spleen which is 8 cm below the left costal margin.

Blood results are as follows:

WCC	15.2 × 10 ⁹ /l
Neutrophils	9.3 × 10 ⁹ /l
Lymphocytes	3.2 × 10 ⁹ /l
Eosinophils	2.1 × 10 ⁹ /l
Hb	10.1 g/dl
MCV	84 fl
PLT	140 × 10 ⁹ /l
Alanine aminotransferase (ALT)	36 U/l
Alkaline phosphatase	134 U/l
Gamma glutamyl transferase	157 U/l
Bilirubin	21 mol/l
Albumin	34 g/l
Chest X-ray	normal

Abdominal ultrasound scan shows an enlarged liver 15 cm, enlarged spleen 10 cm, kidneys and pancreas normal, two gallstones in the gallbladder, no common bile duct (CBD) dilatation.

What is the most likely diagnosis?



- A

HIV
- B

Crohn’s disease
- C

Giardiasis
- D

Schistosomiasis
- E

Leishmaniasis

7242

Submit

Previous Question

Skip Question

Calculator



Normal Values



Back to Filters

Question 51 of 199

A 31-year-old man is seen in the Emergency Department with right upper quadrant tenderness and bloody diarrhoea. He has been unwell since returning from a period supervising a 1-year Operation Raleigh expedition to Brazil. This was one of a number of trips to South America. While there, he took part in watersports and went fresh-water swimming. He visited the jungles and was bitten by the occasional insect. He was always careful however with what he ate and drank. He had night sweats and fever for 1 week, with headache, a non-productive cough and arthralgia. He smokes 40 cigarettes/day and drinks heavily on the weekend. He admitted to having casual unprotected sex with some of the local women.

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What is the most likely diagnosis?

- A

HIV
- B

Crohn's disease
- C

Giardiasis
- D

Schistosomiasis
- E

Leishmaniasis

Explanation



- D

Schistosomiasis

This patient has an exposure to fresh-water immersion and jungle activity in a country where schistosomiasis is endemic. The key findings from his history and investigation are fever, hepatosplenomegaly and bloody diarrhoea in the returning traveller. The disease is caused by one of several species of parasitic trematodes of the genus *Schistosoma*. Schistosomes infect particular species of susceptible freshwater snails, which release cercariae, which are fork-tailed 1-mm-long free-swimming larvae. These survive in freshwater for up to 48 hours, during which time they must attach to human skin/susceptible host mammal or die. Once attached, they migrate through intact skin to dermal veins and, over the next several days, to the pulmonary vasculature. The worms then migrate through the pulmonary capillaries to the systemic circulation, which carries them to the portal veins where they mature. In the portal circulation the males and females pair off and produce eggs.

Diagnosis is based on a good travel history with the risk of exposure clarified. Patients in the acute stage can present with an urticarial illness as they react to the antigenic eggs produced. Symptoms are those of serum sickness and hepatosplenomegaly is often present. Diagnosis can be made by observing eggs in the stool or urine depending on which species of *Schistosoma* has caused infection. Treatment is primarily with praziquantel and supportive therapy.

- A

HIV

It does not explain the bloody diarrhoea or hepatosplenomegaly. Acute HIV seroconversion is more likely to present with fever and general malaise. However, it would be worthwhile to test for HIV due to the potential exposure history.

- B

Crohn's disease

It cannot account for the hepatosplenomegaly and does not explain the lymphadenopathy. It would fit with the fevers, abdominal pain and bloody diarrhoea, and could also explain the arthralgia as an extra-intestinal symptom, but the cough is difficult to explain.

- C

Giardiasis

It would not explain the bloody diarrhoea or hepatosplenomegaly. The patient could be exposed to *Giardia lamblia*, the causative pathogen, through unprotected sex or swimming and it would cause diarrhoea, but the additional features of the history and examination makes it less likely. Giardiasis typically presents as explosive diarrhoea and malabsorption.

- E

Leishmaniasis

Visceral leishmaniasis is a cause of fevers, night sweats and hepatosplenomegaly but would not present with bloody diarrhoea and does not cause arthralgia. Leishmaniasis is endemic to east Africa and India and more commonly presents in a cutaneous form, but visceral leishmaniasis is an important cause of hepatosplenomegaly as untreated it is often fatal.

7242

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Back to Filters

Question 52 of 199

A 60-year-old woman presents to the casualty department following a seizure witnessed by her daughter. The daughter reports that her mother is normally fit and well but had been complaining of headaches recently. The patient is on no known medications and is a non-smoker. She had recently returned from a trip to China. Physical examination findings are normal but the patient is in a postictal state. An urgent CT scan of the head is arranged and this shows a periventricular cystic lesion in the parietal lobe with surrounding oedema. The radiologist says that the appearance is compatible with neurocysticercosis.

Which of the following investigations would be most specific for neurocysticercosis?

A	Fundoscopic examination to directly visualise subretinal parasites	≡
B	Serum anticysticercal antibodies demonstrated by immunoblot assay	
C	CSF enzyme-linked immunosorbent assay for detection of cysticercal antigens	
D	Resolution of intracranial cystic lesions after therapy with albendazole	
E	Single stool examination for ova and parasites of <i>Taenia solium</i>	

7616

Submit

Previous QuestionSkip Question

Calculator✔

Normal Values✔

Back to Filters

Question 52 of 199

A 60-year-old woman presents to the casualty department following a seizure witnessed by her daughter. The daughter reports that her mother is normally fit and well but had been complaining of headaches recently. The patient is on no known medications and is a non-smoker. She had recently returned from a trip to China. Physical examination findings are normal but the patient is in a postictal state. An urgent CT scan of the head is arranged and this shows a periventricular cystic lesion in the parietal lobe with surrounding oedema. The radiologist says that the appearance is compatible with neurocysticercosis.

Which of the following investigations would be most specific for neurocysticercosis?

- A

Fundoscopic examination to directly visualise subretinal parasites
- B

Serum anticysticercal antibodies demonstrated by immunoblot assay
- C

CSF enzyme-linked immunosorbent assay for detection of cysticercal antigens
- D

Resolution of intracranial cystic lesions after therapy with albendazole
- E

Single stool examination for ova and parasites of *Taenia solium*

Explanation ⚙

- A

Fundoscopic examination to directly visualise subretinal parasites

The pork tapeworm, *Taenia solium*, is the causative organism in cysticercosis, which can affect either the intestine, causing an intestinal tapeworm infection, or the central nervous system, causing neurocysticercosis. The infection is acquired through the ingestion of undercooked pork containing cysticerci of *T. solium*. It is important to elicit a history of exposure to an area in which the parasite is endemic. Since the signs and symptoms can be non-specific, certain criteria are required to diagnose the infection ⁽¹⁾. Diagnosis can be difficult as radiological signs are often non-specific and immunological tests are often non-specific. However, direct visualisation of parasites has a very high diagnostic yield and is considered an absolute criterion. The mainstay of treatment is symptomatic relief, eg anticonvulsants for seizures, corticosteroids for cerebral oedema. Antiparasitic drugs (albendazole) are used if viable cysticerci are suspected and should be given under expert supervision.

- B

Serum anticysticercal antibodies demonstrated by immunoblot assay

Antibody studies are frustratingly non-specific for neurocysticercosis. It is still considered a major criterion but is not as specific as direct parasite visualisation.

- C

CSF enzyme-linked immunosorbent assay for detection of cysticercal antigens

This is because while neurocysticercosis often involves high parasite counts within the ventricles and basal cisterns there is not always evidence of antibodies within the CSF. If positive, it is considered a major rather than absolute criterion. CSF could also show an elevated eosinophil count and the presence of parasite antigens.

- D

Resolution of intracranial cystic lesions after therapy with albendazole

Albendazole is not always necessary for lesion resolution as has been documented in many cases.

- E

Single stool examination for ova and parasites of *Taenia solium*

It is worth noting that since the eggs are shed intermittently, a single stool examination looking for ova and parasites may not be enough to identify the tapeworm carriers.

Reference

Del Brutto OH, Rajshekhar V, White AC Jr, Tsang VC, Nash TE, Takayanagui OM, et al. Proposed diagnostic criteria for neurocysticercosis. *Neurology*, 2001, 57, 177-183.

7616

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Next Question

Previous Question	Tag Question
Feedback	End Session

Difficulty: Difficult

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Session Progress

Responses Correct:	0
Responses Incorrect:	38
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Back to Filters

Question 53 of 199

A 23-year-old man presents to the Emergency Department. He has come straight from the airport on returning from his holiday to the Democratic Republic of Congo. He was bitten by a stray dog 1 week ago and while he washed the bite immediately he is concerned about risk for rabies. He had all recommended vaccinations before travelling, including rabies vaccine. His bite has remained clean and the skin was punctured but not deeply. He has no past medical history and takes no regular medications. On examination, all of his observations are normal and the wound is nearly healed.

What is the most appropriate way to manage his risk of rabies?

- A

No further action needed
- B

Vaccination today and on days 7, 28 and in 2-3years
- C

Vaccination today and on day 3
- D

Vaccination today and on days 3, 7, 14, 30
- E

Vaccination today and on days 3, 7, 14, 30 and also give immediate IV immunoglobulin

7617

Submit

Previous QuestionSkip Question

Calculator✔

Normal Values✔

Back to Filters

Question 53 of 199

A 23-year-old man presents to the Emergency Department. He has come straight from the airport on returning from his holiday to the Democratic Republic of Congo. He was bitten by a stray dog 1 week ago and while he washed the bite immediately he is concerned about risk for rabies. He had all recommended vaccinations before travelling, including rabies vaccine. His bite has remained clean and the skin was punctured but not deeply. He has no past medical history and takes no regular medications. On examination, all of his observations are normal and the wound is nearly healed.

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- A

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Vaccination today and on days 7, 28 and in 2–3years
- C

Vaccination today and on day 3
- D

Vaccination today and on days 3, 7, 14, 30
- E

Vaccination today and on days 3, 7, 14, 30 and also give immediate IV immunoglobulin

Explanation



- C

Vaccination today and on day 3

This is a patient who has been previously vaccinated against rabies presenting with a potentially dangerous bite. Rabies is a rhabdovirus spread by infected mammals with an incubation period of 9–90 days. It can present with a prodrome of malaise, agitation, pruritis surrounding the bite leading to infection, as well as headaches, before proceeding to spasms and hydrophobia. Since this patient has presented with a bite which may be at risk he should be treated. Since he had a previous vaccination he will only need a vaccination today and in 3 days to establish immunity.

- A

No further action needed

He is at risk of infection as he has had a skin-penetrating mammal bite in a region in which rabies is endemic.

- B

Vaccination today and on days 7, 28 and in 2–3years

This dosing regimen would be appropriate as pre-exposure prophylaxis in patients at increased risk.

- D

Vaccination today and on days 3, 7, 14, 30

This vaccination schedule would be an appropriate option if he had never been vaccinated before and if it was used in conjunction with IV immunoglobulins.

- E

Vaccination today and on days 3, 7, 14, 30 and also give immediate IV immunoglobulin

This would be the full treatment if the patient had not had any vaccination to rabies before and presented within a week. IV immunoglobulins are not thought to be effective if given after 1 week, as by that time the patient should have established their own antibody response.

7617

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Next Question

- Previous Question

Feedback
- Tag Question

End Session

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Session Progress

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Back to Filters

Question 54 of 199

A 19-year-old man is brought to the casualty department in the evening by his fellow students after the patient began to develop a very high fever, rash and drowsiness. The friends report that he is usually fit and well, often captaining the university fencing team, but that he had had a viral upper respiratory tract infection in the last week and began to develop a high fever associated with the rash that same morning. His other complaints had been of headache, muscle aches, nausea and a couple of episodes of vomiting. On examination, the patient is drowsy and is constantly shielding his face from the light. He has neck stiffness, a purpuric non-blanching rash over his body most notable on the trunk, and a fever of 39°C. The chest examination is clear. A diagnosis of meningococcal septicaemia is made and the patient immediately commenced on intravenous antibiotics.

Which of the following investigation is most appropriate to confirm meningococcaemia?

- | | |
|---|---|
| A | Throat culture |
| B | Lumbar puncture for microscopy, culture and sensitivities |
| C | Serum PCR for <i>Neisseria meningitidis</i> |
| D | Gram stain of lesional skin biopsy |
| E | Gram stain of broncho-aspirate specimens |

7618

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Question 54 of 199

Which of the following investigation is most appropriate to confirm meningococcaemia?

Explanation

7618

Next Question

Difficulty: Average

Peer Responses %

Back to Filters

Question 55 of 199

A 21-year-old woman presented with a history of an abrupt onset of high fever, headache, cough and abdominal pain. About 2 days later she developed a maculopapular rash that began on the extremities and there was associated swelling of the hands and feet. She works as a kindergarten teacher. She has no past medical history that she is aware of, but is unsure of her vaccination history as her parents divorced when she was young and there may have been missed vaccinations during the divorce proceedings. She denies any IV drug use and does not take any regular tablets. She a tattoo on her right ankle that she had done 3 months ago while on holiday in the USA. Apart from that trip, during which she was camping with friends, she has not had any other journeys outside of the UK. On examination there is a rash as described affecting the hands and feet, but no other lesions. Her chest is clear on auscultation and she has no meningisms.

What is the most likely diagnosis?

- A

Rocky Mountain spotted fever
- B

Atypical measles syndrome
- C

Atypical pneumonia
- D

Leptospirosis
- E

Meningococcal meningitis

7619

Submit

Previous QuestionSkip Question

Calculator✔

Normal Values✔

Question 55 of 199

1

1

- ## B Atypical measles syndrome

- ## B Atypical measles syndrome

A Rocky Mountain spotted fever

C Atypical pneumonia

- C Atypical pneumonia

D Leptospirosis

- D Leptospirosis

E	Meningococcal meningitis
---	--------------------------

- E Meningococcal meningitis

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[Previous Question](#)

Tag Question

Feedback

End Session

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Session Progress

Back to Filters

Question 56 of 199

A GP refers a 21-year-old man, who had been previously fit and well, for a second opinion. He had presented with a 6-week history of flitting arthralgia and myalgia. Prior to the onset of this problem, he had been on holiday in the Far East where he had unprotected sexual intercourse with a heterosexual on one occasion only. On general examination, there was no evidence of arthritis but it was noted that the patient had bilateral cervical lymphadenopathy. Investigations showed a white cell count at the lower end of normal, mild anaemia, normal urea and electrolytes, and abnormal liver function tests with all the liver enzymes elevated. Urethral swabs for chlamydia and gonococcus were negative.

Which is the most likely diagnosis?



- | | |
|---|-----------------------------|
| A | Acute HIV infection |
| B | Brucellosis |
| C | Reiter’s syndrome |
| D | Adult-onset Still’s disease |
| E | Relapsing polychondritis |

7620

Submit

Previous Question Skip Question

Calculator 

Normal Values 

Question 56 of 199

10

1

Explanation

Acute HIV infection can affect any number of organ systems, including the lymphatics, skin, gastrointestinal system, genitourinary system, bone marrow and nervous system, with the clinical findings being related to the organ system affected. These signs include persistent generalised lymphadenopathy, oral thrush, oral hairy leukoplakia, shingles (especially in a patient under the age of 40), anaemia, thrombocytopenia and secondary opportunistic infections, eg *Mycobacterium tuberculosis*. The work-up of the patient varies depending on the initial presenting complaint but it is important to exclude all other treatable causes. Acute infection may be detected by the presence of P24 antigen or HIV RNA, both of which precede the development of IgM or IgG antibodies.

C Reiter's syndrome

D Adult-onset Still's disease

E	Relapsing polychondritis
---	--------------------------

Previous Question

Tag Question

Feedback

End Session

Peer Responses %

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Back to Filters

Question 57 of 199

A 24-year-old man known to be HIV positive presents with a 3-day history of worsening shortness of breath, fevers and a cough productive of green sputum. His last CD4 count 2 months ago was $220 \times 10^6/l$ and he is on no treatment, despite it having been strongly recommended on several appointments. On examination, O₂ saturation is 91% on breathing room air, temperature 38.8°C, pulse 120 beats/min, crackles are heard in both midzones. Chest X-ray shows diffuse interstitial shadowing bilaterally. Arterial blood gas (on air) $p(O_2)$ 10.5 kPa, $p(CO_2)$ 3.7 kPa, bicarbonate 22 mmol/l, O₂ saturation 90%.

What is the most appropriate initial treatment?

- | | |
|---|---------------------------------|
| A | Intravenous (IV) co-trimoxazole |
| B | Amoxicillin and clarithromycin |
| C | Clindamycin and primaquine |
| D | Liposomal amphotericin |
| E | Metronidazole |

7644

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Back to Filters

Question 57 of 199

A 24-year-old man known to be HIV positive presents with a 3-day history of worsening shortness of breath, fevers and a cough productive of green sputum. His last CD4 count 2 months ago was $220 \times 10^6/l$ and he is on no treatment, despite it having been strongly recommended on several appointments. On examination, O₂ saturation is 91% on breathing room air, temperature 38.8°C, pulse 120 beats/min, crackles are heard in both midzones. Chest X-ray shows diffuse interstitial shadowing bilaterally. Arterial blood gas (on air) $p(O_2)$ 10.5 kPa, $p(CO_2)$ 3.7 kPa, bicarbonate 22 mmol/l, O₂ saturation 90%.

What is the most appropriate initial treatment?

- A

Intravenous (IV) co-trimoxazole
- B

Amoxicillin and clarithromycin
- C

Clindamycin and primaquine
- D

Liposomal amphotericin
- E

Metronidazole

Explanation



- B

Amoxicillin and clarithromycin

The history is classical of a community-acquired pneumonia and does not suggest *Pneumocystis jirovecii pneumonia* (PCP), which generally has a more subacute time course with a dry cough. The X-ray would support a diagnosis of an atypical pneumonia. As well as opportunistic infections, HIV-positive patients are also more susceptible to common bacterial infections than non-immunocompromised patients. The treatment for community-acquired pneumonia is amoxicillin plus a macrolide, according to British Thoracic Society guidelines.

- A

Intravenous (IV) co-trimoxazole

This would be the first-line treatment for PCP, which is not the most likely diagnosis. PCP is characterised by a more indolent course of a dry cough, commonly a normal chest X-ray and severe hypoxia. It is also associated with pneumothorax. The clinical picture is more in keeping with an atypical chest infection rather than PCP.

- C

Clindamycin and primaquine

This is the second-line treatment for PCP. If the patient could not tolerate co-trimoxazole and the diagnosis was PCP then this would be an appropriate choice.

- D

Liposomal amphotericin

This is the treatment for severe fungal infection or leishmaniasis. Since the patient has a low CD4 count he is at risk of fungal infections, especially invasive aspergillosis, but this is an unlikely diagnosis given the duration of illness and the bilateral signs.

- E

Metronidazole

It would be the treatment for an intra-abdominal cause of infection rather than respiratory infection. Vericonazole can be used for invasive aspergillosis.

7644

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Back to Filters

Question 58 of 199

A 41-year-old Ugandan woman is seen in the HIV clinic. She has a CD4 count of $140 \times 10^6/L$ and was started on prophylactic co-trimoxazole 2 weeks previously. Unfortunately this resulted in a severe rash and deranged liver function tests and was discontinued.

She has glucose-6-phosphate dehydrogenase (G6PD) deficiency and is a type 2 diabetic. Her only current medication is metformin 500 mg bd.

What is the most appropriate *Pneumocystis jirovecii* pneumonia (PCP) prophylaxis?

- | | |
|---|--------------------------|
| A | Co-trimoxazole nebuliser |
| B | Oral dapsone |
| C | Oral pentamidine |
| D | Oral clindamycin |
| E | Pentamidine nebuliser |

7645

Submit

Previous QuestionSkip Question

Calculator✔

Normal Values✔

Back to Filters

Question 58 of 199

A 41-year-old Ugandan woman is seen in the HIV clinic. She has a CD4 count of $140 \times 10^6/L$ and was started on prophylactic co-trimoxazole 2 weeks previously. Unfortunately this resulted in a severe rash and deranged liver function tests and was discontinued. She has glucose-6-phosphate dehydrogenase (G6PD) deficiency and is a type 2 diabetic. Her only current medication is metformin 500 mg bd.

What is the most appropriate *Pneumocystis jirovecii* pneumonia (PCP) prophylaxis?

- A

Co-trimoxazole nebuliser
- B

Oral dapsone
- C

Oral pentamidine
- D

Oral clindamycin
- E

Pentamidine nebuliser

Explanation ⚙

- E

Pentamidine nebuliser

This is a patient with a low CD4 count. If a patient has a CD4 count below $200 \times 10^6/l$ then they should be offered prophylaxis against PCP. First-line treatment is oral co-trimoxazole. If this cannot be tolerated then the second-line treatment is oral dapsone. However, this is inappropriate in a patient with G6PD deficiency. Third-line prophylaxis is with nebulised pentamidine.

- A

Co-trimoxazole nebuliser

The drug cannot be administered by nebuliser.

- B

Oral dapsone

It can cause haemolysis in patients with G6PD deficiency. Other drugs that have a definite risk include primaquine, methylthioninium chloride, nitrofurantoin, quinolones (including ciprofloxacin, moxifloxacin, nalidixic acid, norfloxacin and ofloxacin) and sulfonamides.

- C

Oral pentamidine

Pentamidine is only effective in nebulised form.

- D

Oral clindamycin

Clindamycin can be used in the treatment of *Pneumocystis jirovecii* pneumonia (PCP) but not the prophylaxis.

7645

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Next Question

Previous Question

Feedback

Tag Question

End Session

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Responses Correct:	0
Responses Incorrect:	44
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Back to Filters

Question 59 of 199

A 32-year-old, HIV-positive, man is brought to the Emergency Department by his partner, who has noticed increasing confusion over the past 4 weeks. The patient has been non-compliant with his antiretroviral therapy and has not attended outpatient clinic for over 6 months. The patient denies any headache or neurological symptoms but scores 0/10 on the Mental Test Score.

Neurological examination reveals some past pointing and dysdiadochokinesis on the left but nil else. The patient is afebrile. Computed tomography (CT) of the head with contrast demonstrates no focal lesions.

Cerebrospinal fluid (CSF) results:

Protein	0.8 g/l
Glucose (plasma)	4.8 (5.2) mmol/l
Cryptococcal antigen (CRAG)	Negative
WCC	2 cell/mm ³
Red blood cells (RBC)	4 cell/mm ³
Microscopy	No organisms seen



Which treatment is most likely to improve the symptoms?

- A

Sulphadiazine and pyrimethamine
- B

Highly active antiretroviral therapy (HAART)
- C

IV ganciclovir
- D

IV aciclovir
- E

High-dose fluconazole

7646

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 59 of 199

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- C

IV ganciclovir
- D

IV aciclovir
- E

High-dose fluconazole

Explanation



- B

Highly active antiretroviral therapy (HAART)

The most likely diagnosis is progressive multifocal leukoencephalopathy (PML). PML is a unique demyelinating disease which usually occurs in a person with abnormal immune responses resulting from serious disease, treatment with cytotoxic drugs or irradiation, or long-term immunosuppression. The pathology of PML is distinctive and consists of multiple foci of demyelination of varying size from pinpoint lesions to areas of several centimetres. The lesions may occur anywhere but are usually in the cerebral hemispheres, less often in the cerebellum and brainstem and rarely in the spinal cord. Typically, PML evolves gradually, with impairment of mental function and disturbance of speech and vision. Movement may also be affected. The disease then progresses rapidly and the patient is severely disabled, eventually becoming demented, blind and paralysed, and finally there is coma and death. Almost any neurological sign can be part of the clinical spectrum, motor sensory or cerebellar signs depending on the white matter areas affected. Often nothing is seen on CT, and magnetic resonance imaging (MRI) is a much more useful modality in this condition.

PML generally occurs only at low CD4 counts and there is no specific therapy. PCR for JC virus, a polyomavirus and the causative organism, should be performed. Commencing HAART can improve symptoms in some patients, although some can deteriorate. It is inevitably progressive. Another possibility is HIV-associated encephalopathy, where the HIV virus itself is responsible for the pathology. HAART is also the treatment of choice for this. The clinical details do not suggest neurological toxoplasmosis, cytomegalovirus (CMV), herpes simplex virus (HSV) or cryptococcal meningitis, so the other answers are incorrect.

- A

Sulphadiazine and pyrimethamine

This is the treatment for toxoplasmosis. *Toxoplasma gondii* is a common cause of cerebral abscesses in patients with a low CD4 count. The presentation is with focal neurological signs, confusion and evidence of raised intracranial pressure. Imaging in these patients shows multiple ring-enhancing lesions which can be associated with mass effect. The absence of major neurological signs and headache makes this diagnosis less likely, as does the normal CT scan.

- C

IV ganciclovir

It is the first-line treatment for CMV infection. CMV infection in the HIV immunocompromised brain normally presents with worsening confusion and mental withdrawal. On examination there can be cranial nerve palsy and nystagmus. CT findings in these patients can demonstrate diffuse white matter hypodensities with ependymal enhancement, ventricular enlargement, meningeal enhancement and focal or ring-enhancing lesions. The absence of any relevant examination findings and the absence of CT findings makes this an incorrect answer.

- D

IV aciclovir

It is not used against any causes of confusion in HIV-positive individuals. It would be an appropriate treatment against herpes simplex virus (HSV)-associated oesophagitis, for example.

- E

High-dose fluconazole

This is an alternative to amphotericin B in cryptococcal infection in HIV-positive individuals. Cryptococcal infection usually presents with high fever and headache, and patients may also have evidence of raised intracranial pressure. The negative antigen testing makes this a less likely diagnosis.

7646

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Next Question

- Previous Question

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Responses Correct:	0
Responses Incorrect:	45
Responses Total:	45
Responses - % Correct:	0%

Back to Filters

Question 60 of 199

A 35-year-old man from Nigeria presents to the Emergency Department with fevers, night sweats and 10 kg weight loss over the past 2 months. There is no cough or shortness of breath. He says that he was diagnosed HIV positive 6 months previously in Africa but does not know any further details. On examination, he is febrile at 38°C and cachectic. He has a 4 cm lymph node in his left axilla, and his chest is clear. On examination, he has 2 cm hepatomegaly. Chest X-ray is unremarkable.

Bloods tests reveal:

Hb	8.6 g/dl
WCC	$2.9 \times 10^9/l$
PLT	$311 \times 10^9/l$
Urea and electrolytes	Within normal range
Alkaline phosphatase	330 U/l
Alkaline transferase	75 U/l
Bilirubin	$9 \mu\text{mol/l}$
Albumin	25 g/l
Lactate dehydrogenase	1500 U/l

An ultrasound of the liver reveals diffuse hepatomegaly with no duct dilatation.

What is the most appropriate next step?

- A

Sputum culture
- B

Bone marrow trephine
- C

Lymph node biopsy
- D

CT of the abdomen
- E

Liver biopsy

7647

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 60 of 199

A 35-year-old man from Nigeria presents to the Emergency Department with fevers, night sweats and 10 kg weight loss over the past 2 months. There is no cough or shortness of breath. He says that he was diagnosed HIV positive 6 months previously in Africa but does not know any further details. On examination, he is febrile at 38°C and cachectic. He has a 4 cm lymph node in his left axilla, and his chest is clear. On examination, he has 2 cm hepatomegaly. Chest X-ray is unremarkable.

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Sputum culture
- B

Bone marrow trephine
- C

Lymph node biopsy
- D

CT of the abdomen
- E

Liver biopsy

Explanation



- C

Lymph node biopsy

This is a young, HIV-positive patient with fevers, night sweats, weight loss and enlarged .The most likely diagnoses are tuberculosis and lymphoma; histoplasmosis and atypical mycobacteria are also a possibility. A tissue sample is needed to differentiate between these diagnoses and a lymph node biopsy is the least invasive method of obtain histology. Further microscopy and staining will be able to provide a definitive diagnosis.

- A

Sputum culture

There are two main differential diagnoses: tuberculosis and lymphoma. Sputum culture is unlikely to show any bacilli as the patient is not coughing, and even if they were the sensitivity would be low.

- B

Bone marrow trephine

This is a very invasive investigation to obtain a tissue sample and would be a secondary investigation following established diagnosis of lymphoma.

- D

CT of the abdomen

A computed tomography (CT) of the abdomen will add little; a tissue sample is needed to look for lymphoma, granulomas or acid-fast bacilli.

- E

Liver biopsy

The patient does have hepatomegaly, but investigating for underlying causes would be more appropriate.

7647

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Previous Question

Feedback

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Responses Correct:	0
Responses Incorrect:	46
Responses Total:	46
Responses - % Correct:	0%

Back to Filters

Question 61 of 199

A 36-year-old Ghanaian man presents to a sexual health clinic for a routine screen. He moved from Ghana 2 months ago and has no previous medical problems. He is found to be HIV positive with a CD4 count of $40 \times 10^6/l$, viral load 25 000, toxoplasma immunoglobulin G (IgG) positive, IgM negative, cryptococcal antigen negative. He is referred to the HIV clinic where he is commenced on low-dose co-trimoxazole and antiretroviral therapy with tenofovir, 3TC and efavirenz. Three weeks later he presents extremely unwell with 5 kg weight loss, drenching night sweats and malaise.

What is the most likely diagnosis?

- | | |
|---|------------------------------------|
| A | Adverse reaction to co-trimoxazole |
| B | Immune reconstitution syndrome |
| C | Drug side-effect of HAART |
| D | Disseminated cryptococcosis |
| E | Non-Hodgkin’s lymphoma |

7648

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Previous QuestionSkip Question

Calculator

Normal Values

Question 61 of 199

[illegible]

- Explanation

B Immune reconstitution syndrome

Some patients after starting antiretroviral therapy will develop an exacerbation of symptoms, signs, or radiological manifestations of tuberculosis. This has been well described in patients without HIV infection who have a period of depressed immunity, but it appears to occur more commonly in HIV-positive patients. The aetiology of these reactions is unknown, but it is presumed in HIV disease that they occur at least in part as a consequence of antiretroviral therapy related reconstitution of immunity leading to an abnormal immune response to tubercle antigens released by dead or dying bacilli. These reactions do not have a widely accepted definition. They are characterised by worsening or appearance of new signs, symptoms, or radiographic manifestations of tuberculosis that occur after initiation of antiretroviral therapy, and are not the direct result of TB treatment failure or another disease process. Immune reconstitution syndromes (IRIS) can also occur with other infections such as cytomegalovirus (CMV) and toxoplasmosis.

- Co-trimoxazole is incorrect, it can cause nausea, vomiting, diarrhoea, abdominal pain, urticaria and general weakness. However, side-effects would be expected much sooner when starting treatment and would not explain the fevers or night sweats.

disseminated cryptococcosis is more often cryptococcosis is a fungal AIDS-defining illness, possible in someone with a low CD4 count. It would initially present with either meningitic or pulmonary

- | | |
|---|------------------------|
| F | Non-Hodgkin's lymphoma |
|---|------------------------|

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[Next Question](#)

Tag Question

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Session Progress	
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Back to Filters

Question 62 of 199

You are a senior house officer on the ward. An HIV-positive man is on treatment for TB with isoniazid, rifampicin, pyrazinamide and ethambutol. His treatment was commenced 1 week ago. He has a CD4 count of $100 \times 10^6/l$ and the plan is to start him on antiretroviral therapy as an inpatient. On the ward he has a seizure which is self-terminating. Neurological examination reveals right-sided weakness affecting the arm and leg.

Further investigations reveal:

Glucose	5.1 mmol/l
Hb	10.2 g/dl
PLT	$320 \times 10^9/l$
WCC	$2.0 \times 10^9/l$
Urea and electrolytes	NAD

An urgent computed tomography (CT) of the head is requested, which reveals a solitary focal lesion in the left internal capsule with some surrounding oedema and mild effacement of the posterior horn of the lateral ventricle.

What is the most urgent next step?

- A

Add in a sixth antituberculous drug
- B

Urgent toxoplasma serology
- C

Lumbar puncture
- D

Commence sulphadiazine and pyrimethamine
- E

Magnetic resonance imaging (MRI) of the brain

7649

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Question 62 of 199

Further investigations reveal:

Glucose	5.1 mmol/l
Hb	10.2 g/dl
PLT	$320 \times 10^9/l$
WCC	$2.0 \times 10^9/l$
Urea and electrolytes	NAD

11

What is the most urgent next step?

- | | |
|---|---|
| A | Add in a sixth antituberculous drug |
| B | Urgent toxoplasma serology |
| C | Lumbar puncture |
| D | Commence sulphadiazine and pyrimethamine |
| E | Magnetic resonance imaging (MRI) of the brain |

- | | |
|---|--|
| D | Commence sulphadiazine and pyrimethamine |
|---|--|

A Add in a sixth antituberculous drug

B	Urgent toxoplasma serology
---	----------------------------

C	Lumbar puncture
---	-----------------

E	Magnetic resonance imaging (MRI) of the brain
---	---

7049

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Topic Question

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Question 63 of 199

Preliminary blood tests reveal:

She is admitted and transfused three units of blood. As part of her investigation an HIV test is done which is positive. After the transfusion, her breathlessness is much improved and she remains stable. A bone marrow trephine and lymph node biopsy are requested.

On the ward round, she mentions in passing that the vision in her right eye has been steadily deteriorating for the past 3 weeks. You perform dilated fundoscopy and note widespread haemorrhages and exudates in the right fundus. The left fundus reveals more limited exudates.

11

Submit

Skip Question

Back to Filters

Question 63 of 199

A 19-year-old Thai woman presents to the Emergency Department complaining of malaise and shortness of breath. On examination, she has multiple enlarged cervical and axillary nodes and mild hepatosplenomegaly.

Preliminary blood tests reveal:

Hb	6.1 g/dl
WCC	$1.5 \times 10^9/l$
Neutrophils	$0.6 \times 10^9/l$
PLT	$31 \times 10^9/l$
Urea and electrolytes	NAD
Alkaline phosphatase	205 U/l
Aspartate transferase	80 U/l
Bilirubin	6 μ mol/l
Albumin	21 g/l

She is admitted and transfused three units of blood. As part of her investigation an HIV test is done which is positive. After the transfusion, her breathlessness is much improved and she remains stable. A bone marrow trephine and lymph node biopsy are requested.

On the ward round, she mentions in passing that the vision in her right eye has been steadily deteriorating for the past 3 weeks. You perform dilated fundoscopy and note widespread haemorrhages and exudates in the right fundus. The left fundus reveals more limited exudates.

What is the best treatment for this patient?

- A

IV aciclovir
- B

IV foscarnet
- C

IV ganciclovir
- D

IV cidofovir
- E

IV ribavirin

Explanation

⚙

C

IV ganciclovir

The cause of her impaired vision is cytomegalovirus (CMV) retinitis. CMV retinitis is a common cause of blurred vision in immunodeficiency which can lead to blindness. It can be asymptomatic as well. Fundoscopy can show haemorrhagic necrosis, granular lesions or frosted branch angiitis around retinal vessels.

A

IV aciclovir

IV aciclovir is incorrect. Aciclovir would not be effective against CMV but could be used against herpes simplex virus infection.

B

IV foscarnet

IV foscarnet is incorrect. Either IV ganciclovir or foscarnet could be used and although trial evidence suggests marginally more rapid clearance with foscarnet versus ganciclovir, ganciclovir is still preferred under UK Guidelines as the first treatment of choice. Foscarnet is generally the second-line therapy of choice in patients who fail to gain an adequate response to ganciclovir.

D

IV cidofovir

IV cidofovir is incorrect. Cidofovir can be used if both ganciclovir and foscarnet are contraindicated or there is a failure to respond to one of these therapies. It is, however, the drug of choice for varicella zoster retinitis. There are very limited data comparing cidofovir with ganciclovir and foscarnet, but ganciclovir efficacy is well established. Cidofovir may have a greater role in future treatment as it can be dosed less frequently with its longer half-life.

E

IV ribavirin

IV ribavirin is incorrect. Ribavirin is an antiviral agent used to treat respiratory syncytial virus, hepatitis C virus and viral haemorrhagic fever.

7650

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Next Question

Previous Question

Tag Question

Feedback

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Back to Filters

Question 64 of 199

A 31-year-old intravenous drug user attends the Genitourinary Clinic for an asymptomatic screen. His syphilis serology reveals positive TPHA (*Treponema pallidum* haemagglutination test), negative RPR (rapid plasma reagin). He denies having been previously treated for syphilis and is prescribed a course of intramuscular (IM) procaine penicillin which is administered by a nurse in clinic. Within 1 minute of receiving the injection the patient becomes acutely agitated, leaping off the couch and throwing the trolley across the room. He is not amenable to reasoning and is crying out, apparently experiencing visual hallucinations. Eventually he is restrained by the security staff.

What is the explanation for this behaviour?



- A Jarisch-Herxheimer reaction
- B Procaine reaction
- C Acute opiate withdrawal
- D Anaphylaxis
- E Paranoid schizophrenia

7651

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Previous Question Skip Question

Calculator

Normal Values

Back to Filters

Question 64 of 199

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What is the explanation for this behaviour?

- A

Jarisch–Herxheimer reaction
- B

Procaine reaction
- C

Acute opiate withdrawal
- D

Anaphylaxis
- E

Paranoid schizophrenia

Explanation



- B

Procaine reaction

The procaine reaction occurs when procaine penicillin is accidentally given intravenous (IV) rather than intramuscular (IM). It results in an instantaneous feeling of impending doom with delusions and hallucinations. Patients often need restraining. The process is self-limiting within 20 minutes. Occasionally the patient may have a seizure, which should be terminated with IV or PR diazepam.

- A

Jarisch–Herxheimer reaction

A Jarisch–Herxheimer reaction is a systemic reaction to endotoxin-like products that are released when bacteria are destroyed during antibiotic treatment. It has been documented to occur with treatment of syphilis, Lyme disease, leptospirosis and relapsing fever. It occurs 1–12 hours following the first antibiotic dose and is not seen with subsequent treatment. It causes malaise, pyrexia, flushing and tachycardia. This can be followed by hypotension due to peripheral vasodilatation. While this reaction is most commonly associated with syphilis, the timing is too early and the clinical picture does not match.

- C

Acute opiate withdrawal

Early symptoms of opiate withdrawal include feeling hot or cold, dehydration, muscle aches, coryzal symptoms and yawning, but can also include agitation and confusion. The rapid onset makes withdrawal unlikely, and hallucinations are not associated with this.

- D

Anaphylaxis

Anaphylaxis is a sudden-onset, severe systemic hypersensitivity reaction, associated with flushing, urticaria and rash. While the patient has a sudden reaction following a new drug, the symptoms do not match as anaphylaxis is not associated with hallucinations and there are no features of systemic hypersensitivity such as a rash or breathing problems.

- E

Paranoid schizophrenia

The patient has no history of psychiatric problems and the rapid onset of symptoms makes a chronic psychiatric diagnosis unlikely. It would also be highly coincidental following introduction of a new drug.

7651

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Next Question

- Previous Question

Tag Question
- Feedback

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Back to Filters

Question 65 of 199

An 18-year-old man presents to the Genitourinary Medicine Clinic complaining of dysuria for the past week. He is systemically well. In his sexual history, he has had unprotected sexual intercourse with three partners in the past 6 months. On examination, there is no penile discharge, testicular masses or tenderness. The abdomen is soft and non-tender. Urethral swab reveals 33 neutrophils per high-power field, no organisms are seen.

What is the most appropriate treatment for this patient?

- A

No treatment needed
- B

Nitrofurantoin
- C

Ceftriaxone
- D

Azithromycin
- E

Metronidazole

7652

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 65 of 199

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No treatment needed
- B

Nitrofurantoin
- C

Ceftriaxone
- D

Azithromycin
- E

Metronidazole

Explanation

D

Azithromycin

The patient has non-specific or non-gonococcal urethritis (NGU) as there were no gonococci seen on microscopy but presence of neutrophils on the penile swab. NGU is caused by chlamydia in 60% of cases. It can be caused by other bacteria such as *Ureaplasma urealyticum* and *Mycoplasma genitalium*. These organisms are rarely detected but are well covered by azithromycin and doxycycline which are both commonly used for NGU and recommended as first-line treatment by the British Association for Sexual Health and HIV (BASHH). Alternative treatments include ofloxacin.

A

No treatment needed

The patient most likely has a significant infection as is evidenced by the neutrophils on the penile swab and will need treatment. If the swab is negative then no treatment should be offered.

B

Nitrofurantoin

This would be a possible treatment for urinary tract infection but this is unlikely to be the correct diagnosis as dysuria is a common presentation for NGU as well as UTI, especially in a male patient with a history of unprotected sexual encounters.

C

Ceftriaxone

This would be the treatment for gonorrhoea. For this diagnosis microscopy would reveal Gram-negative diplococci within polymorphonuclear leukocytes.

E

Metronidazole

This is the correct treatment for bacterial vaginosis.

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Next Question

Previous Question

Tag Question

Feedback

End Session

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Responses Incorrect:	51
Responses Total:	51
Responses - % Correct:	0%

Back to Filters

Question 66 of 199

You are a senior house officer in The Genitourinary Medicine Clinic. A 28-year-old Eritrean woman presents to the clinic with a letter from the obstetricians. She is 15 weeks pregnant and as part of her booking appointment was found to have positive syphilis serology. She is asymptomatic, serology shows *Treponema pallidum* haemagglutination test (TPHA) positive at a titre of 1/320. In her clinic notes you see that she has been treated for early latent syphilis with one dose of benzathine penicillin 18 months previously. At her most recent follow-up, 6 months ago, serology shows TPHA positive, rapid plasma reagin (RPR) 1/6; 3 months prior to that, RPR was 1/6. The patient has no symptoms and her husband was treated for syphilis at the same time. She is very concerned about the possibility of passing syphilis onto her baby. You repeat her serology which shows TPHA positive, RPR1/4.

What is the most appropriate management?

- A

Further three doses of benzathine penicillin
- B

Further one dose of benzathine penicillin
- C

No further treatment required
- D

3-monthly monitoring of RPR during pregnancy
- E

2 weeks of doxycycline

7653

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 66 of 199

You are a senior house officer in The Genitourinary Medicine Clinic. A 28-year-old Eritrean woman presents to the clinic with a letter from the obstetricians. She is 15 weeks pregnant and as part of her booking appointment was found to have positive syphilis serology. She is asymptomatic, serology shows *Treponema pallidum* haemagglutination test (TPHA) positive at a titre of 1/320. In her clinic notes you see that she has been treated for early latent syphilis with one dose of benzathine penicillin 18 months previously. At her most recent follow-up, 6 months ago, serology shows TPHA positive, rapid plasma reagin (RPR) 1/6; 3 months prior to that, RPR was 1/6. The patient has no symptoms and her husband was treated for syphilis at the same time. She is very concerned about the possibility of passing syphilis onto her baby. You repeat her serology which shows TPHA positive, RPR1/4.

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- B

Further one dose of benzathine penicillin
- C

No further treatment required
- D

3-monthly monitoring of RPR during pregnancy
- E

2 weeks of doxycycline

Explanation



- C

No further treatment required

This patient has been adequately treated for early latent syphilis and her RPR is stable, but remaining positive. She is serofast and you would only be concerned at the possibility of reinfection if the RPR increased by twofold or more. In fact, it has decreased slightly since her last blood test, so there is no cause for concern. The titre of TPHA is meaningless and should not be done. TPHA will remain positive all her life and simply indicates previous syphilis infection, giving no information about treatment.

Treatment for syphilis is generally with benzathine penicillin IM with dose and need for repeat of treatment dependent on the stage of syphilis and if the patient is pregnant. For early syphilis, including primary, secondary and early latent, a single dose of 2.4 MU is needed. For latent, cardiovascular and gummatous syphilis three doses over 3 weeks are needed. Note that for cardiovascular syphilis, steroids should be given as well, starting the day before antibiotics. For neurosyphilis, procaine penicillin and probenecid is needed for 2 weeks.

In pregnancy, treatment for early syphilis is one dose up to week 27 week of pregnancy and two doses from week 28 to term. With late

- A

Further three doses of benzathine penicillin

There is no further need for treatment as RPR is not changing. This management is not generally recommended.

- B

Further one dose of benzathine penicillin

There is no further need for treatment as RPR is not changing. If a patient is treated in the third trimester then a further dose is needed and she is in week 15 of pregnancy.

- D

3-monthly monitoring of RPR during pregnancy

RPR monitoring is not needed.

- E

2 weeks of doxycycline

In pregnancy, procaine penicillin is an alternative to benzathine penicillin as doxycycline is not appropriate in pregnancy. In patients who are not pregnant, doxycycline can be used as an alternative treatment.

7653

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Next Question

- Previous Question

Tag Question
- Feedback

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Session Progress

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Back to Filters

Question 67 of 199

A 32-year-old man presents to the Emergency Department. He is known to be HIV positive but has been non-compliant with his antiretroviral therapy and his CD4 count is $80 \times 10^6/\text{l}$. He complains of a 3-week history of a worsening headache, and malaise. He reported symptoms of a dry cough and breathlessness a month ago but this seemed to improve with antibiotics from the general practitioner. On examination he is unwell, temperature 38.8°C , pulse 120 bpm, blood pressure 100/50 mmHg, O_2 saturation 98% on air. There is no lymphadenopathy but there is evidence of oral candida, the chest is clear, and cardiovascular examination is normal. On neurological examination, there is no focal neurology but marked neck stiffness and photophobia. Computed tomography (CT) of the head reveals no focal lesions.

Cerebrospinal fluid (CSF):

Opening pressure	40 cmH ₂ O
Protein	3.5 g/l
Glucose	3.1 mmol/l (plasma 4.5)
WCC	$45 \times 10^9/\text{l}$ of which $43 \times 10^9/\text{l}$ are lymphocytes, $2 \times 10^9/\text{l}$ are polymorphs

Which test is most likely to give the diagnosis?



- A

Serum toxoplasma serology
- B

CSF Cryptococcal antigen
- C

Ziehl-Neelsen stain
- D

CSF herpes simplex virus (HSV) polymerase chain reaction (PCR)
- E

CSF Gram stain

7654

Submit

Previous Question

Skip Question

Calculator



Normal Values



Back to Filters

Question 67 of 199

A 32-year-old man presents to the Emergency Department. He is known to be HIV positive but has been non-compliant with his antiretroviral therapy and his CD4 count is $80 \times 10^6/l$. He complains of a 3-week history of a worsening headache, and malaise. He reported symptoms of a dry cough and breathlessness a month ago but this seemed to improve with antibiotics from the general practitioner. On examination he is unwell, temperature $38.8^{\circ}C$, pulse 120 bpm, blood pressure 100/50 mmHg, O_2 saturation 98% on air. There is no lymphadenopathy but there is evidence of oral candida, the chest is clear, and cardiovascular examination is normal. On neurological examination, there is no focal neurology but marked neck stiffness and photophobia. Computed tomography (CT) of the head reveals no focal lesions.

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Which test is most likely to give the diagnosis?



- A

Serum toxoplasma serology
- B

CSF Cryptococcal antigen
- C

Ziehl-Neelsen stain
- D

CSF herpes simplex virus (HSV) polymerase chain reaction (PCR)
- E

CSF Gram stain

Explanation



- B

CSF Cryptococcal antigen

This is the most diagnostic test for cryptococcal meningitis, the most likely explanation for this presentation: lymphocytic meningitis with a high opening pressure. Cryptococcal meningitis is caused by *Cryptococcus* species, which are neutrotropic encapsulated yeasts. They enter the body through the lungs so up to a third of patients will report a pneumonitis in the weeks preceding systemic cryptococcal infection, which could explain the dry cough for this patient. It can also cause skin lesions which closely resemble molluscum contagiosum. Once inside, they infect neutrophils leading to meningitic spread, causing signs and symptoms of meningitis, such as neck stiffness for this patient, and headache. It is also associated with raised intracranial pressure. Standard treatment is with amphotericin B and flucytosine.

- A

Serum toxoplasma serology

This would be correct for a suspected diagnosis of toxoplasmosis. Cerebral toxoplasma does not classically cause meningitis. Typically, presentation can occur with neurological signs developing over days to weeks and then can cause seizures. In addition, raised intracranial pressure can cause headaches and vomiting. Some present with diffuse encephalitis causing confusion, seizures and reduced consciousness. This patient does not have focal neurology and instead has a cough, and normally toxoplasmosis would show ring-enhancing lesions on a CT scan.

- C

Ziehl-Neelsen stain

This would be the correct answer for suspected TB meningitis. In TB meningitis, you would expect to see a much lower CSF glucose in relation to the plasma glucose. It is also not associated with a high opening pressure.

- D

CSF herpes simplex virus (HSV) polymerase chain reaction (PCR)

It would be correct foe suspected herpes simplex encephalitis. Clinical suspicion of encephalitis would be higher if there were confusion and reduced consciousness, and again the cough makes this option less likely.

- E

CSF Gram stain

It would be the primary method to identify bacterial meningitis. Bacterial meningitis is unlikely with a lymphocytic cerebrospinal fluid (CSF) and also would usually have a more acute clinical course.

7654

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Responses Correct:	0
Responses Incorrect:	53
Responses Total:	53
Responses - % Correct:	0%

Back to Filters

Question 68 of 199

A 32-year-old man presents to the Emergency Department. He is known to be HIV positive but has been non-compliant with his antiretroviral therapy and his CD4 count is $80 \times 10^6/\text{l}$. He complains of a 3-week history of a worsening headache, and malaise, with 3 kg weight loss. On examination he is unwell, temperature 38.8°C , pulse 120 bpm, blood pressure 100/50 mmHg, O_2 saturation 98% on air. There are some moderately enlarged lymph nodes in his neck and axillae and evidence oral candida, the chest is clear, cardiovascular examination NAD. On neurological examination, there is no focal neurology but marked neck stiffness and photophobia. Computed tomography (CT) of the head reveals no focal lesions.

Cerebrospinal fluid (CSF):

Opening pressure	24 cm H ₂ O
Protein	4.5 g/l
Glucose	1.8 mmol/l (plasma 4.5)
WCC	$45 \times 10^9/\text{l}$ of which $43 \times 10^9/\text{l}$ are lymphocytes, $2 \times 10^9/\text{l}$ are polymorphs, acellular preparation

Which is the best treatment for this condition?



- A

IV amphotericin
- B

Sulphadiazine and pyrimethamine
- C

Isoniazid, rifampicin, pyrazinamide, ethambutol, pyridoxine, corticosteroids
- D

IV ceftriaxone
- E

Antiretroviral therapy

7655

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 68 of 199

Cerebrospinal fluid (CSF):

Opening pressure	24 cm H ₂ O
Protein	4.5 g/l
Glucose	1.8 mmol/l (plasma 4.5)
WCC	45 × 10 ⁹ /l of which 43 × 10 ⁹ /l are lymphocytes, 2 × 10 ⁹ /l are polymorphs, acellular preparation

- | | |
|---|--|
| A | IV amphotericin |
| B | Sulphadiazine and pyrimethamine |
| C | Isoniazid, rifampicin, pyrazinamide, ethambutol, pyridoxine, corticosteroids |
| D | IV ceftriaxone |
| E | Antiretroviral therapy |

- | | |
|---|--|
| C | Isoniazid, rifampicin, pyrazinamide, ethambutol, pyridoxine, corticosteroids |
|---|--|

A	IV amphotericin
---	-----------------

- B Sulphadiazine and pyrimethamine

D	IV ceftriaxone
---	----------------

- [illegible]

- meningitis. While the symptoms of meningitis are present, the onset over 3 weeks makes this diagnosis less likely, and the presence of lymphocytes rather than neutrophils in the CSF is

definitively not in keeping with bacterial meningitis.

- E Antiretroviral therapy

It would be the most appropriate treatment option for primary CNS lymphoma. This would be the best treatment for such patients as there is little response to chemotherapy; however the prognosis would remain extremely poor. In this case, no malignant cells were seen in the CSF and you would start by 'treating the treatable', in this case TB. Also, the presence of fever and the absence of any lesions on the CT scan make CNS lymphoma far less likely.

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[Previous Question](#)

Tag Question

Feedback

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Responses Correct:	0
Responses Incorrect:	54
Responses Total:	54
Responses - % Correct:	0%

Question 69 of 199

The Emergency Department SHO has performed some blood tests:

Hb	13.2 g/dl
WCC	$8.9 \times 10^9/\text{l}$
PLT	$360 \times 10^9/\text{l}$
Bilirubin	154 $\mu\text{mol/l}$
Alanine aminotransferase (ALT)	872 U/l
Alkaline phosphatase (ALP)	300 U/l
Albumin	30 g/dl
Hepatitis B S antibody (Ab)	Positive
Hep B S antigen (Ag)	Negative
Renal function	Normal ranges

11

- | | |
|---|---------------------|
| A | Liver ultrasound |
| B | Anti-hepatitis A Ab |
| C | Anti-hepatitis C Ab |
| D | Anti-hepatitis D Ab |
| E | HIV antibody test |

Submit

[Previous Question](#)

Skip Question

Calculator

Normal Values

Question 69 of 199

The Emergency Department SHO has performed some blood tests:

-

- This patient has symptoms suggestive of hepatitis A infection; a flu-like prodromal illness followed by an icteric illness. He is at risk as

- A liver ultrasound may be useful if, for example, the patient does

- It would be correct when hepatitis C is the most likely diagnosis. Hepatitis C is almost always asymptomatic during the acute

- Hepatitis D only causes this picture when superinfection occurs in

- The patient may well be HIV positive but the HIV antibody titre will not give you the diagnosis on this occasion.

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[Previous Question](#)
[Tag Question](#)

Feedback End Session

Responses Correct:	0
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Responses Incorrect:	55
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Back to Filters

Question 70 of 199

You are the senior house officer in the Genitourinary Medicine Clinic. A patient presents requesting post-exposure prophylaxis (PEP) following an unprotected sexual encounter.

Under which circumstances would you most recommend PEP be given?

- A

A man having insertive anal sex with an HIV-positive man 4 weeks ago
- B

A woman having receptive vaginal sex with a heterosexual British man of unknown HIV status 2 days ago
- C

A woman performing fellatio with an HIV-positive man without ejaculation 1 day ago
- D

A man having insertive anal sex with a British woman 1 day ago
- E

A man having receptive anal sex with a British man 2 days ago



7658

Submit

Previous Question

Skip Question

Calculator

✔

Normal Values

✔

Question 70 of 199

given?

- | | |
|---|---|
| | 4 weeks ago |
| B | A woman having receptive vaginal sex with a heterosexual British man of unknown HIV status 2 days ago |
| C | A woman performing fellatio with an HIV-positive man without ejaculation 1 day ago |
| D | A man having insertive anal sex with a British woman 1 day ago |
| E | A man having receptive anal sex with a British man 2 days ago |

- E A man having receptive anal sex with a British man 2 days ago

	Source HIV status			
	HIV positive		Unknown HIV status	
	HIV VL unknown / detectable (>200copies/ml)	HIV VL undetectable (<200copies/ml)	From high prevalence country / risk-group (e.g. MSM) *	From low prevalence country / group
Receptive anal sex	Recommend	Not recommended [¶] <i>Provided source has confirmed HIV VL<200c/ml for >6 months</i>	Recommend	Not recommended
Insertive anal sex	Recommend	Not recommended	Consider [‡]	Not recommended
Receptive vaginal sex	Recommend	Not recommended	Consider [‡]	Not recommended
Insertive vaginal sex	Consider [¶]	Not recommended	Consider [‡]	Not recommended
Fellatio with ejaculation [‡]	Not recommended	Not recommended	Not recommended	Not recommended
Fellatio without ejaculation [‡]	Not recommended	Not recommended	Not recommended	Not recommended
Splash of semen into eye	Not recommended	Not recommended	Not recommended	Not recommended
Cunnilingus	Not recommended	Not recommended	Not recommended	Not recommended
Sharing of injecting equipment ^{**}	Recommended	Not recommended	Consider	Not recommended
Human bite [§]	Not recommended	Not recommended	Not recommended	Not recommended
Needlestick from a discarded needle in the community			Not recommended	Not recommended

* High prevalence countries or risk-groups are those where there is a significant likelihood of the source individual being HIV-positive. Within the UK at present, this is likely to be MSM, IDUs from high-risk countries (see ** below) and individuals who have immigrated to the UK from areas of high HIV prevalence, particularly sub-Saharan Africa (high prevalence is >1%). HIV prevalence Country specific HIV prevalence can be found in UNAIDS Gap Report: <http://www.unaids.org/en/resources/campaigns/2014/2014gapreport/gapreport>

¶ The source's viral load must be confirmed with the source's clinic as <200c/ml for >6 months. Where there is any uncertainty about results or adherence to ART then PEP should be given after unprotected anal intercourse with an HIV-positive person

‡ More detailed knowledge of local prevalence of HIV within communities may change these recommendations from consider to recommended in areas of particularly high HIV prevalence. Co-factors in Box 1 that influence the likelihood of transmission should be considered

§ Co-factors in Box 1 that influence the likelihood of transmission should be considered

‡ PEP is not recommended for individuals receiving fellatio i.e. inserting their penis into another's oral cavity. For individuals giving fellatio PEP is not recommended unless co-factors 1 & 2 in Box 1 are present e.g HIV seroconversion and oropharyngeal trauma / ulceration, see notes in guideline above

**HIV prevalence amongst IDUs varies considerably depending on country of origin and is particularly high in IDUs from Eastern Europe and central Asia. Region-specific estimates can be found in the UNAIDS Gap Report http://www.unaids.org/sites/default/files/media_asset/05_Peoplewhoinjectdrugs.pdf

§ A bite is assumed to constitute breakage of the skin with passage of blood. See notes in guideline above about extreme circumstances where PEP could be considered after discussion with a specialist

Ideally according to guidelines, it should be started within 72 hours of exposure.

- | | |
|---|--|
| A | A man having insertive anal sex with an HIV-positive man 4 weeks ago |
|---|--|

While this is very high risk behaviour, the presentation is far too late for PEP. PEP should be started ideally within 24 hours but can be considered within 72 hours of exposure.

- | | |
|---|---|
| B | A woman having receptive vaginal sex with a heterosexual British man of unknown HIV status 2 days ago |
|---|---|

group and therefore PEP is not recommended.

- A woman performing fellatio with an HIV-positive man without ejaculation 1 day ago

ejaculation occurred.

While the behaviour is considered to be of high risk of transmission, a British woman is considered to be of a low prevalence group and should therefore no PEP should be recommended.

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Next Question

[Previous Question](#)

Tag Question

Feedback

End Session

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Back to Filters

Question 71 of 199

A 22-year-old man presents complaining of a 4-week history of joint pain since returning from his holiday in Spain with a group of male friends. He has noticed stiffness and pain in his fingers and hands, and pain in his lower back. A couple of weeks previously he had also noticed stinging when passing urine, although this has now improved a lot. His mother has commented on how red his eyes look. He has no past medical history but is concerned as his uncle has ankylosing spondylitis. On examination, there is no swelling of the joints of the hand but there is some clear discomfort on movement. Flexion and extension of the spine is also limited by pain and there is tenderness over the sacroiliac joint. There are no skin rashes but he has clear evidence of bilateral conjunctivitis.

Which test will be most useful in making the diagnosis?

- A

Urinalysis
- B

Human leukocyte antigen (HLA) typing
- C

Rheumatoid factor
- D

Urethral swab for microscopy
- E

X-ray of the sacroiliac joint

7659

Submit

Previous QuestionSkip Question

Calculator✔

Normal Values✔

Back to Filters

Question 71 of 199

A 22-year-old man presents complaining of a 4-week history of joint pain since returning from his holiday in Spain with a group of male friends. He has noticed stiffness and pain in his fingers and hands, and pain in his lower back. A couple of weeks previously he had also noticed stinging when passing urine, although this has now improved a lot. His mother has commented on how red his eyes look. He has no past medical history but is concerned as his uncle has ankylosing spondylitis. On examination, there is no swelling of the joints of the hand but there is some clear discomfort on movement. Flexion and extension of the spine is also limited by pain and there is tenderness over the sacroiliac joint. There are no skin rashes but he has clear evidence of bilateral conjunctivitis.

Which test will be most useful in making the diagnosis?



- A Urinalysis
- B Human leukocyte antigen (HLA) typing
- C Rheumatoid factor
- D Urethral swab for microscopy
- E X-ray of the sacroiliac joint

Explanation



D Urethral swab for microscopy

The symptoms are classical of sexually acquired reactive arthritis (SARA) with symptoms developing within 30 days of unprotected sexual intercourse and a mean lag of 14 days between the symptoms of urethritis and the joint symptoms. If the patient is found to have >5 polymorphonuclear cells/high-powered field then that will give the diagnosis. Associated conjunctivitis is a common association, more rarely, iritis can occur.

A Urinalysis

This would be the correct answer if urinary tract infection was the right diagnosis. However, this is very unlikely given the patient is a young man, and also would not explain joint pain and conjunctivitis.

B Human leukocyte antigen (HLA) typing

This option suggests a diagnosis of ankylosing spondylitis. Ankylosing spondylitis is a possibility but should not cause dysuria. However, even if typing reveals human leukocyte antigen (HLA)-B27, that will in no way prove ankylosing spondylitis as imaging of the sacroiliac joints and a close history would be far more helpful in establishing that diagnosis.

C Rheumatoid factor

It would be helpful in establishing a diagnosis of rheumatoid arthritis. While rheumatoid arthritis can cause joint pain and eye symptoms, the absence of any joint swelling, erythema or tenderness on examination, as well as stiffness in the history, makes this unlikely. His demographics and the presence of dysuria further make this an unlikely diagnosis.

E X-ray of the sacroiliac joint

This would be the most appropriate investigation to establish ankylosing spondylitis and would have been the correct answer if the history did not have dysuria and there was stiffness of his back.

7659

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Next Question

Previous Question

Feedback

Tag Question

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Responses Correct:	0
Responses Incorrect:	57
Responses Total:	57
Responses - % Correct:	0%

Back to Filters

Question 72 of 199

An HIV+ man has a CD4 count of 220×10^6 /l. He is generally asymptomatic but has noticed white patches in his mouth. They are quite unsightly and he is keen for treatment. On examination, you observe irregular white patches, with a corrugated appearance along the side of his tongue. On probing with a swab, they cannot be dislodged.

What is the best way to eradicate these patches?



- | | |
|---|---------------------------|
| A | Oral fluconazole |
| B | Nystatin lozenges |
| C | Antiretroviral therapy |
| D | Aciclovir 200 mg 5× daily |
| E | Improve oral hygiene |

7660

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Back to Filters

Question 72 of 199

An HIV+ man has a CD4 count of $220 \times 10^6/l$. He is generally asymptomatic but has noticed white patches in his mouth. They are quite unsightly and he is keen for treatment. On examination, you observe irregular white patches, with a corrugated appearance along the side of his tongue. On probing with a swab, they cannot be dislodged.

What is the best way to eradicate these patches?

- A

Oral fluconazole
- B

Nystatin lozenges
- C

Antiretroviral therapy
- D

Aciclovir 200 mg 5× daily
- E

Improve oral hygiene

Explanation



- C

Antiretroviral therapy

The diagnosis is oral hairy leukoplakia, which is an AIDs-defining illness but can occur in other cases or immunosuppression. The clinical picture is described above and it is often mistaken for oral candida, the only difference being that plaques of leucoplakia cannot be dislodged. The condition is caused by Epstein-Barr virus (EBV) and it only needs to be treated if it is causing symptoms such as pain or dysphagia. The best treatment is to commence antiretroviral therapy, as the CD4 count rises, it will resolve. Other treatment options are high-dose aciclovir (3 g/day) and it may respond to other antivirals. Surgery is also an option.

- A

Oral fluconazole

It would a treatment option if the history and examination suggested oral candida. The clinical picture would be very similar except that oral candida can be rubbed off while leukoplakia cannot.

- B

Nystatin lozenges

This is another treatment option for oral candida, which is not the most likely diagnosis.

- D

Aciclovir 200 mg 5× daily

This would be the correct treatment for herpes simplex viral sores. Oral lesions can appear as ulcers filled with yellow slough or cold sores. These are typically painful as well. As the clinical description does not match, this is not the right treatment option.

- E

Improve oral hygiene

This would be the correct treatment for gingivitis. Gingivitis is inflammation of the gum and usually presents with gums that bleed easily.

7660

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Responses Correct:	0
Responses Incorrect:	58
Responses Total:	58
Responses - % Correct:	0%

Question 73 of 199

Cerebrospinal fluid (CSF) shows:

T₂-weighted magnetic resonance imaging (MRI) shows high signal in the caudate and putamen.

11

Submit

Skip Question

Question 73 of 199

Cerebrospinal fluid (CSF) shows:

T₂-weighted magnetic resonance imaging (MRI) shows high signal in the caudate and putamen

- ### Explanation



- Peak incidence is in the seventh decade of life and characteristically involves a rapidly progressive dementia from a few weeks' duration to less than 2 years. Commonly accompanying features include cerebellar ataxia, pyramidal and extrapyramidal signs and myoclonus. A definitive diagnosis can only be made on postmortem. The other diagnoses are less likely.

- Vascular lymphoma is a rare subtype of large B-cell lymphoma. In this disease, there is proliferation of clonal lymphocytes within small vessels without infiltration of surrounding tissue. Presentation is often with focal neurological symptoms and signs and MRI can show multiple hyperintense lesions. The absence of such lesions on the MRI makes this a less likely diagnosis.

- This is a rare form of persistent measles infection causing a progressive encephalitis. It is characterised by a history of primary measles infection followed by progressive psychoneurological deterioration. The absence of measles and the patient's age make this unlikely.

- The rapid onset of his symptoms and the neurological findings makes this diagnosis unlikely.

- The absence of known neoplasia makes this unlikely. The level of CSF protein would also be expected to be much higher.

Next Question

Tag Question

End Session

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Continuous Development

Back to Filters

Question 74 of 199

A 23-year-old man presents to Accident and Emergency Department. He is known to be HIV positive. His last outpatient appointment was several months ago and at that time his CD4 cell count was $210 \times 10^6/l$. He did not attend his most recent scheduled appointment. He is on no regular medication and has no other medical problems. He presents with a 3-week history of increasing shortness of breath and dry cough. On examination: T38.5, RR30/min, Sats 89% on air, heart rate 110 bpm. His chest is clear to auscultation. A chest X-ray reveals diffusely increased shadowing bilaterally. Arterial blood gas on air reveals a $p_a(O_2)$ 8.8 kPa, $p_a(CO_2)$ 3.5 kPa, bicarbonate 22 mmol/l, Sats 88%.

Which of the following is the most appropriate initial treatment?

- | | |
|---|--|
| A | Co-trimoxazole IV |
| B | Co-trimoxazole IV and antiretroviral therapy |
| C | Co-trimoxazole IV and methylprednisolone IV |
| D | Clindamycin and primaquine |
| E | Low molecular weight heparin |

8516

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 74 of 199

1

1

A	Co-trimoxazole IV
B	Co-trimoxazole IV and antiretroviral therapy
C	Co-trimoxazole IV and methylprednisolone IV
D	Clindamycin and primaquine
E	Low molecular weight heparin

C	Co-trimoxazole IV and methylprednisolone IV
---	---

The diagnosis is *Pneumocystis carinii* pneumonia (PCP) pneumonia caused by *Pneumocystis jirovecii* (previously called *carinii*). BHIVA guidelines recommend addition of methylprednisolone to IV co-trimoxazole when $p_a(\text{O}_2) < 9.3 \text{ kPa}$ (or $< 70 \text{ mmHg}$), as this is an indicator of severe disease. The BHIVA guidelines have provided criteria for further clarification of severity of PCP.

Table 3.2 Stratification of disease severity in PCP [149]

	Mild	Moderate*	Severe
Symptoms and signs	Dyspnoea on exertion with or without cough and sweats	Dyspnoea on minimal exertion and occasionally at rest; cough and fever with or without sweats	Dyspnoea and tachypnoea at rest; fever and cough
Oxygen PaO ₂ room air, at rest in kPa (mmHg)	> 11.0 (> 83)	8.1–11.0 (61–83)	≤ 8.0 (≤ 60)
SAO ₂ at rest on air	> 96	91–96	< 91
Chest radiograph	Normal or minor perihilar shadowing	Diffuse interstitial shadowing	Extensive interstitial shadowing with or without diffuse alveolar shadowing

*Note: for treatment purposes moderate severity is grouped with severe disease if $\text{PaO}_2 \leq 9.3\text{kPa}$ or mild disease if $\text{PaO}_2 > 9.3\text{kPa}$.

A	Co-trimoxazole IV
---	-------------------

This would be the correct answer if the patient did not have hypoxia as steroids are needed to acutely help relieve breathlessness. In mild disease oral treatment can be considered.

B Co-trimoxazole IV and antiretroviral therapy

Antiretroviral treatment will be needed and should be offered once the acute illness is treated.

D Clindamycin and primaquine

This combination is an option as second line treatment when co-trimoxazole fails.

E	Low molecular weight heparin
---	------------------------------

PEs occur with a much higher incidence within the HIV-positive population and should always be considered in the differential diagnosis. However, in view of the high fever and chest X-ray changes, this is less likely.

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Responses Incorrect:	60
Responses Total:	60
Responses - % Correct:	0%

Back to Filters

Question 75 of 199

A 32-year-old woman attends the Genito-urinary Medicine (GUM) Clinic. She is concerned about vaginal discharge with an unpleasant smell. She has noticed these symptoms for the past 3 weeks and has been washing her genitals regularly with soap and shower gel. She sometimes puts Dettol in her bath. She is married and has had no other sexual partners for 5 years. On examination, she has a normal vulva, vagina and cervix. There is a thin white discharge with a fishy smell.

Which is the most likely diagnosis?

A	<i>Candida</i>
B	Bacterial vaginosis
C	<i>Trichomonas</i>
D	<i>Chlamydia</i>
E	HIV +ve

8517

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Previous QuestionSkip Question

Calculator

Normal Values

Back to Filters

Question 75 of 199

A 32-year-old woman attends the Genito-urinary Medicine (GUM) Clinic. She is concerned about vaginal discharge with an unpleasant smell. She has noticed these symptoms for the past 3 weeks and has been washing her genitals regularly with soap and shower gel. She sometimes puts Dettol in her bath. She is married and has had no other sexual partners for 5 years. On examination, she has a normal vulva, vagina and cervix. There is a thin white discharge with a fishy smell.

Which is the most likely diagnosis?

- A

Candida
- B

Bacterial vaginosis
- C

Trichomonas
- D

Chlamydia
- E

HIV +ve

Explanation



- B

Bacterial vaginosis

Bacterial vaginosis (BV) is caused by replacement of the usual vaginal lactobacilli with anaerobic bacteria, genital mycoplasmas and others. Douching, washing with scented soaps and gels have been implicated and the patient should be advised to stop these practices. Treatment is with metronidazole. BV is not sexually transmitted. BV is the commonest cause of abnormal vaginal discharge in women of childbearing age. It is twice as common as vaginal candidiasis. The prevalence of BV has varied from 5% in asymptomatic college students, 12% in pregnant women and 30% in women undergoing termination of pregnancy.

- A

Candida

Candida causes a severe itch and white lumpy discharge, which would commonly be seen on examination. Vulvovaginal candidiasis is the second most common cause of vaginitis and vaginal discharge after BV: the lifetime incidence of vulvovaginal candidiasis is estimated at 50–75%. The prevalence of vulvovaginal candidiasis is not known, but the disease is diagnosed in 5–15% of women who attend sexually transmitted disease and family planning clinics

- C

Trichomonas

Trichomonas gives an itch, offensive green discharge and is sexually transmitted. In 1997, GUM clinics in the UK reported over 5600 cases of trichomoniasis in women and 250 cases in men.

- D

Chlamydia

Women present with dysuria, abdominal pain, intermenstrual or postcoital bleeding and vaginal discharge. Men can have urethritis with dysuria and discharge and sometimes epididymo-orchitis.

- E

HIV +ve

This is very unlikely given the lack of exposure and HIV does not cause vaginal discharge.

8517

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- Previous Question

Feedback
- Tag Question

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Back to Filters

Question 76 of 199

A 46-year-old intravenous drug user comes to the A&E Unit with a purplish rash on his arms and feet. He states that the rash has been present for nearly 2 weeks and is progressively worsening. It is not pruritic or painful. On examination, he is not in any acute distress. There is mild jaundice present. Heart and lung examination is within normal limits. Abdominal examination shows right upper quadrant tenderness with liver edge palpable 5 cm below the right costal margin. Skin examination reveals palpable purpura on both arms and his left foot. His right lower limb shows some erythematous nodules as well as livedo reticularis. CNS examination shows decreased strength in plantar flexion as well as decreased sensation of the left foot.

Some laboratory results are shown below:

HIV test	Negative
Hepatitis B surface antigen	Positive

Urine microscopy:

RBCs	+++
Protein	++
WBC	-ve

What is the most likely cause of his rash?

- A

Idiopathic thrombocytopenic purpura
- B

Henoch-Schönlein purpura (HSP)
- C

Polyarteritis nodosa (PAN)
- D

Kaposi’s sarcoma
- E

Impaired coagulation secondary to liver cirrhosis

8521

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 76 of 199

A 46-year-old intravenous drug user comes to the A&E Unit with a purplish rash on his arms and feet. He states that the rash has been present for nearly 2 weeks and is progressively worsening. It is not pruritic or painful. On examination, he is not in any acute distress. There is mild jaundice present. Heart and lung examination is within normal limits. Abdominal examination shows right upper quadrant tenderness with liver edge palpable 5 cm below the right costal margin. Skin examination reveals palpable purpura on both arms and his left foot. His right lower limb shows some erythematous nodules as well as livedo reticularis. CNS examination shows decreased strength in plantar flexion as well as decreased sensation of the left foot.

Some laboratory results are shown below:

HIV test	Negative
Hepatitis B surface antigen	Positive

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What is the most likely cause of his rash?



- A

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- B

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- C

Polyarteritis nodosa (PAN)
- D

Kaposi’s sarcoma
- E

Impaired coagulation secondary to liver cirrhosis

Explanation



- C

Polyarteritis nodosa (PAN)

The findings such as erythematous nodules, livedo reticularis, mononeuritis multiplex and kidney involvement are all suggestive of PAN, which also occurs in patients with hepatitis B. The presence of hepatitis B surface antigen demonstrates hepatitis B infection.

- A

Idiopathic thrombocytopenic purpura

This diagnosis most often presents with bruising, petechiae and epistaxis and is usually seen in children. It would not explain the proteinuria as well.

- B

Henoch-Schönlein purpura (HSP)

The purpuric rash of Henoch-Schönlein is usually present in lower extremities and buttocks. Renal involvement can be seen in HSP, but not the signs of mononeuritis multiplex.

- D

Kaposi’s sarcoma

This diagnosis is extremely unlikely without HIV and would not explain the neurological features.

- E

Impaired coagulation secondary to liver cirrhosis

The absence of features of chronic liver disease makes this an unlikely diagnosis and it also would not explain neurological features.

8521

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Next Question

Previous Question

Tag Question

Feedback

End Session

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Responses Correct:	0
Responses Incorrect:	62
Responses Total:	62
Responses - % Correct:	0%

Back to Filters

Question 77 of 199

A 26-year-old man presents to the A&E unit with groin pain that has come on over the past few hours, which is severe in intensity and leaves him unable to walk. He denies dysuria, haematuria or penile discharge. There is no history of trauma. On examination, he has a fever of 38.3°C, with severe tenderness on palpation of the left testis, which is also warm and swollen. A firm, tender mass is noted at the posterior aspect of the testes. The cremasteric reflex is present. There is no change in pain noticed with elevation of scrotum. Urine dipstick showed leukocytes. Radionucleotide scan shows increased blood flow to the left testicle.

What is the most likely diagnosis?

- | | |
|---|-------------------------|
| A | Mumps orchitis |
| B | Testicular malignancy |
| C | Epididymitis |
| D | Urinary tract infection |
| E | Testicular torsion |

8522

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Back to Filters

Question 77 of 199

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What is the most likely diagnosis?

- A

Mumps orchitis
- B

Testicular malignancy
- C

Epididymitis
- D

Urinary tract infection
- E

Testicular torsion

Explanation

⚙

C

Epididymitis

This is a case of acute epididymitis, which is commonly caused by *Chlamydia trachomatis*. The increased blood flow is secondary to the inflammation process.

A

Mumps orchitis

Mumps orchitis can occur 4 or 5 days following parotitis but does not occur in vaccinated patients.

B

Testicular malignancy

It would not explain the acute onset, high temperature, leukocytes in the urine or tenderness.

D

Urinary tract infection

This would present with dysuria and not with testicular tenderness.

E

Testicular torsion

In testicular torsion, the pain is usually worse with elevation of scrotum, and the cremasteric reflex is usually absent. It would also not explain the leukocytes in the urine dip or the increased rather than decreased blood flow. Colour flow Doppler, in the hands of a skilled scanning technician, will demonstrate reduced blood flow in testicular torsion, and may be more available than radionucleotide scanning in the acute setting.

8522

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Next Question

Previous Question	Tag Question
Feedback	End Session

Difficulty: Easy

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	63
Responses Total:	63
Responses - % Correct:	0%

Back to Filters

Question 78 of 199

A 43-year-old sexually active man who has sex with other men was admitted ‘off legs’. His illness started with a sore throat. On examination, he had a temperature of 38.6°C. There were multiple diffuse areas of exudate on his pharynx with cervical lymphadenopathy. The medical house officer on-call had noticed a swollen neck. He had recently been on holiday to Eastern Europe.

What is the most likely diagnosis?



- | | |
|---|---------------------------|
| A | Glandular fever |
| B | Acute myeloid leukaemia |
| C | Oesophageal candida |
| D | Streptococcal tonsillitis |
| E | Diphtheria |

8543

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Question 78 of 199

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The history of travel to Eastern Europe associated with an

Glandular fever, or infective mononucleosis, is a self-limiting

This diagnosis would not explain the exudate and is associated with

This diagnosis would not explain his systemic features or

Tonsillitis would cause fever, lymphadenopathy and exudate, but

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Back to Filters

Question 79 of 199

A 23-year-old woman has attended the GU clinic for multiple (>5) episodes of painful genital ulceration. One such episode a year before caused acute urinary retention, and was treated with IV aciclovir. According to the case notes from that admission, at that time she was noted to have ‘multiple small ulcers affecting the labial and vulval area with erythema of the surrounding skin, and marked tender inguinal lymphadenopathy’. However, on examination today at the outpatient clinic she has no ulcers.

What treatment should you offer her?



- | | |
|---|------------------------|
| A | 5 days’ aciclovir |
| B | 3 months’ aciclovir |
| C | 3 months’ valaciclovir |
| D | 5 days’ valaciclovir |
| E | 3 months’ ganciclovir |

9220

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Back to Filters

Question 79 of 199

A 23-year-old woman has attended the GU clinic for multiple (>5) episodes of painful genital ulceration. One such episode a year before caused acute urinary retention, and was treated with IV aciclovir. According to the case notes from that admission, at that time she was noted to have ‘multiple small ulcers affecting the labial and vulval area with erythema of the surrounding skin, and marked tender inguinal lymphadenopathy’. However, on examination today at the outpatient clinic she has no ulcers.

What treatment should you offer her?

- A

5 days’ aciclovir
- B

3 months’ aciclovir
- C

3 months’ valaciclovir
- D

5 days’ valaciclovir
- E

3 months’ ganciclovir

Explanation

⚙

- B

3 months’ aciclovir

This patient has frequently recurring herpes simplex virus (HSV) episodes. Usually if a patient has more than six episodes yearly they are offered prophylactic treatment, which consists of 3 months’ oral aciclovir with the aim of suppressing the HSV.

- A

5 days’ aciclovir

This would be the correct option for treating acute HSV sores but none are present at this time.

- C

3 months’ valaciclovir

Valaciclovir is a pro-drug of aciclovir and has the advantage of needing to be taken only twice daily. This would be a treatment option, but it is generally not offered as it is considerably more expensive.

- D

5 days’ valaciclovir

This would be an option for treating an acute course of HSV sores.

- E

3 months’ ganciclovir

Ganciclovir is not usually used for HSV infections but can be used for cytomegalovirus (CMV).

9220

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Next Question

Previous Question	Tag Question
Feedback	End Session

Difficulty: Average

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Session Progress

Responses Correct:	0
Responses Incorrect:	65
Responses Total:	65
Responses - % Correct:	0%

Back to Filters

Question 80 of 199

A 32-year-old single man presents to the clinic with his male flatmate. He complains of a rash on the left upper chest and has trouble with extensive papillary warts. He admits to weight loss of 2 stone over the course of the past year. On examination he has erythematous blistering rash in a dermatomal distribution, a number of pink macular lesions and extensive papillary warts. He is emaciated and there is evidence of cervical lymphadenopathy.

Which of the following is the most likely underlying diagnosis?

- A

HIV infection
- B

Chronic myeloid leukaemia
- C

Hodgkin’s lymphoma
- D

Acute lymphoblastic leukaemia
- E

Herpes zoster infection

9267

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 80 of 199

2



Explanation

Herpes zoster is an opportunistic infection in this patient, and while it is most likely present, it would not explain his general symptoms.

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Tag Question

Feedback

End Session

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Session Progress

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Back to Filters

Question 81 of 199

A 67-year-old man presents to the GP. He is from Southern India and is visiting the UK to see his son. His family has brought him to the doctor as he is unable to extend his wrist and has clawing of his fingers. On examination there is a dry scaling rash above the elbow on the affected side. The skin rash itself is painless and non-itchy, and there is evidence of sensory loss distal to the lesion.

Which of the following is the most likely diagnosis in this case?



- | | |
|---|-------------------------|
| A | Herpes zoster infection |
| B | Rickettsial infection |
| C | Lepromatous leprosy |
| D | Tuberculoid leprosy |
| E | Syphilis infection |

9268

Submit

Previous Question Skip Question

Calculator 

Normal Values 

Question 81 of 199

5

5

- | | |
|---|-------------------------|
| A | Herpes zoster infection |
| B | Rickettsial infection |
| C | Lepromatous leprosy |
| D | Tuberculoid leprosy |
| E | Syphilis infection |

- ## D Tuberculoid leprosy

lepromatous (LL). Between the two ends of the spectrum lies a broad group designated as borderline, and subclassified as borderline tuberculoid (BT), midborderline (BB) and borderline lepromatous (BL). The disease does not remain static but evolves spontaneously or in response to therapy. Transition toward the TT pole is referred to as upgrading (and may lead to a reversal or type I reaction) and transition toward the LL pole as downgrading (leading to type II reaction or erythema nodosum leprosum [ENL]). The reactions reflect abrupt changes in the host-parasite immunological balance and are associated with acute clinical exacerbations.

- Herpes zoster virus causes varicella (chickenpox) in childhood and

B	Rickettsial infection
---	-----------------------

- | | |
|---|-----------------------|
| B | Rickettsial infection |
|---|-----------------------|

C	Lepromatous leprosy
---	---------------------

- | | |
|---|---------------------|
| C | Lepromatous leprosy |
|---|---------------------|
- This form of leprosy is systemic with symmetrical distribution and

E	Syphilis infection
---	--------------------

- | | |
|---|--------------------|
| E | Syphilis infection |
|---|--------------------|
- While secondary syphilis can have a painless and asymptomatic

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Previous Question

Tag Question

Feedback

End Session

End Session

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Responses Incorrect:	67
Responses Total:	67
Responses - % Correct:	0%

Back to Filters

Question 82 of 199

A 23-year-old gay man attends because of a painful mouth. He has a past history of asthma for which he takes a fluticasone/salmeterol combination inhaler This was recently changed from using a beclomethasone inhaler alone.

On examination he looks well but has evidence of extensive oral candidiasis. Which is the most likely cause?



- | | |
|---|-----------------------------------|
| A | Steroid-related candida infection |
| B | HIV infection |
| C | Chronic myeloid leukaemia |
| D | Chronic lymphoblastic leukaemia |
| E | Hodgkin’s lymphoma |

9269

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Back to Filters

Question 82 of 199

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On examination he looks well but has evidence of extensive oral candidiasis. Which is the most likely cause?

- A

Steroid-related candida infection
- B

HIV infection
- C

Chronic myeloid leukaemia
- D

Chronic lymphoblastic leukaemia
- E

Hodgkin’s lymphoma

Explanation



- A

Steroid-related candida infection

Given the history of use of inhaled corticosteroids for asthma, this is the most likely cause of this man’s candida infection. Steroids cause immunosuppression by glucocorticoid action, and inhaled steroids can lead to localised immunosuppression and opportunistic infection with poor inhaler technique. Patients should be advised on good inhaler technique, with the use of a spacer device when they are prescribed a metered dose inhaler for steroid delivery, rinsing of the mouth with water after use of the inhaler or teeth cleaning, and adequate oral hygiene when taking their night-time dose.

- B

HIV infection

HIV with a low CD4+ count could be an explanation for oral candidiasis, but in the absence of any mentioned risk factors and without evidence of systemic features and other opportunistic disease this is a less likely diagnosis.

- C

Chronic myeloid leukaemia

Chronic myeloid leukaemia (CML) is a myeloproliferative disorder affecting one or all cell lines. Progression is characterised into a chronic phase, an accelerated phase and finally blast crisis. Most patients present in the chronic phase with insidious symptoms of fatigue, weight loss and night sweats. Examination can reveal features of cell line disruption such as anaemia and bruising, but while lymphadenopathy can occur it is not a major feature. It is not associated with immunodeficiency and would therefore not explain this patient’s oral candidiasis, and the age of presentation of CML is usually around 65 years old.

- D

Chronic lymphoblastic leukaemia

Chronic lymphoblastic leukaemia (CLL) is a malignant monoclonal expansion of B lymphocytes. CLL occurs at a median age of 72 years and presents insidiously with susceptibility of infection, symmetrically enlarged lymph nodes, abdominal pain from splenomegaly, bleeding from thrombocytopenia and fatigue from anaemia. Signs include lymphadenopathy, hepatomegaly and splenomegaly. The absence of systemic features and organomegaly makes this an unlikely diagnosis.

- E

Hodgkin’s lymphoma

Hodgkin’s lymphoma is a malignant disease of lymphatic system with multinucleated giant (Reed–Sternberg) cells. Presentation usually occurs in early adulthood, and again is insidious with asymptomatic lymph node enlargement, weight loss, night sweats and unexplained fever. Some patients have chest symptoms and alcohol-induced pain.

9269

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Next Question

Previous Question

Feedback

Tag Question

End Session

Difficulty: Average

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	68
Responses Total:	68
Responses - % Correct:	0%

Back to Filters

Question 83 of 199

A 24-year-old man returned from a 3-week holiday in India 10 days ago. He presents with a 48-hour history of fever, generalised myalgia, headache, dry cough and diarrhoea. On examination, he is pyrexial and has hepatosplenomegaly but no other significant findings.

His blood results are as follows:

Hb	10.2 g/dl
PLT	160 × 10 ⁹ /l
WCC	3.0 × 10 ⁹ /l
Alanine aminotransferase (ALT)	140 U/l
Gamma-GT	140 U/l
Alkaline phosphatase	290 U/l
Bilirubin	20 mol/l
Albumin	28 g/l

A malarial film is negative. Blood cultures show Gram-negative rods.

What is the most likely causative agent?

- A

Legionella pneumophila
- B

Salmonella enteritis
- C

Coxiella burnetii
- D

Salmonella typhi
- E

Leptospira interrogans

9384

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 83 of 199

A 24-year-old man returned from a 3-week holiday in India 10 days ago. He presents with a 48-hour history of fever, generalised myalgia, headache, dry cough and diarrhoea. On examination, he is pyrexial and has hepatosplenomegaly but no other significant findings.

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- A

Legionella pneumophila
- B

Salmonella enteritis
- C

Coxiella burnetii
- D

Salmonella typhi
- E

Leptospira interrogans

Explanation



- D

Salmonella typhi

Salmonella typhi is the causative organism of typhoid fever. Typhoid fever is seen in travellers returning from countries in the developing world. The presence of Gram-negative rods on the microscopy image confirms the underlying cause. The incubation period is 1–3 weeks. The illness is characterised by fever, myalgia and headache. Diarrhoea or constipation can occur. Rose spots are characteristic findings, usually on the trunk: they are faint, salmon-coloured, maculopapular, blanching lesions.

It is often difficult to differentiate typhoid from malaria clinically. Blood cultures are the diagnostic method of choice. S. typhi appears as a Gram-negative bacillus on Gram film. Serology (the Widal test) is not performed routinely in the UK.

Ceftriaxone is the treatment of choice due to problems with fluoroquinolone resistance.

- A

Legionella pneumophila

L. pneumophila is the causative organism of Legionnaire’s disease (LD). LD is an atypical pneumonia which is difficult to distinguish from typical pneumonia clinically. It is heavily related to foreign travel as the organism is prevalent in stagnant water and usually contracted via poorly regulated air conditioning units. LD presents after 2–10 days with headache and myalgia followed by fever, rigors and cough. A third of patients have gastrointestinal symptoms. While L. pneumophila is a Gram-negative rod and the patient has possible symptoms, this diagnosis would not explain the noted hepatosplenomegaly.

- B

Salmonella enteritis

S. enteritis is a cause of gastroenteritis. Following an incubation of 6–72 hours, the patient experiences fever, diarrhoea (which can be bloody) and abdominal cramps usually lasting 4–7 days before recovery. This diagnosis would not explain the headache, cough or organomegaly. S. enteritis is a Gram-negative rod.

- C

Coxiella burnetii

C. burnetii is the cause for Q fever, a zoonosis acquired from farm animals. The organism is a Gram-negative coccobacillus. Symptoms of Q fever can be variable in onset, presenting with myalgia, headache and dry cough, and can occur with hepatitis and hepatomegaly. However, it would not explain splenomegaly and there is no history of exposure to farm animals.

- E

Leptospira interrogans

L. interrogans is a spirochaete causing leptospirosis which is spread from rat urine into aquatic areas and then contact with abraded skin or mucosa leads to infection. Water activities increase risk. Following an incubation of 1–3 weeks, there is an abrupt onset of fever, headache, myalgia, dry cough and lethargy. This phase may resolve without treatment but can lead to an immune phase with jaundice, abdominal pain, diarrhoea, rash, meningitis and organ failure. It would explain the high LFTs and low haemoglobin, and would also explain hepatomegaly but not splenomegaly.

9384

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Session Progress

Responses Correct:	0
Responses Incorrect:	69
Responses Total:	69
Responses - % Correct:	0%

Back to Filters

Question 84 of 199

You review a 74-year-old man with hospital-acquired pneumonia. Sputum culture suggests infection with *Pseudomonas aeruginosa*.

Which of the following antibiotics would be most appropriate treatment for him?

- A

Ceftazidime
- B

Cefuroxime
- C

Metronidazole
- D

Benzylopenicillin
- E

Flucloxacillin

9796

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 84 of 199

You review a 74-year-old man with hospital-acquired pneumonia. Sputum culture suggests infection with *Pseudomonas aeruginosa*.

Which of the following antibiotics would be most appropriate treatment for him?

- A

Ceftazidime
- B

Cefuroxime
- C

Metronidazole
- D

Benzympenicillin
- E

Flucloxacillin

Explanation

⚙

- A

Ceftazidime

Pseudomonas aeruginosa is a rod-shaped bacterium found in the natural environment. It is a frequent cause of hospital-acquired infection (around 10% of all nosocomial infections per year). There is frequent drug resistance, so that combinations of antibiotics such as ceftazidime and ciprofloxacin are usually recommended. Other options may include gentamicin or imipenem. Mortality rates in patients with *Pseudomonas* bacteraemia may be high, approaching 90% in patients with *Pseudomonas* endocarditis.

- B

Cefuroxime

Cefuroxime is a broad-spectrum cephalosporin antibiotic used for urinary tract infections, skin infection, upper and lower respiratory tract infections, sinusitis, Lyme disease and gonorrhoea. As a cephalosporin it is a β -lactam antibiotic interfering with bacterial cell wall production. It is not effective against *Pseudomonas* due to β -lactamase activity.

- C

Metronidazole

Metronidazole is an antibiotic useful against anaerobic bacteria and protozoa, and useful for treating infection in gums, pelvis and gastrointestinal tract. It inhibits nucleic acid synthesis and only in anaerobic organisms. *Pseudomonas* is a facultative anaerobe making it a less effective choice.

- D

Benzympenicillin

Benzympenicillin is a β -lactam antibiotic and would therefore be susceptible to β -lactamases in *Pseudomonas*.

- E

Flucloxacillin

Flucloxacillin is also a β -lactam antibiotic and would therefore be susceptible to β -lactamases in *Pseudomonas*.

9796

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Next Question

Previous Question	Tag Question
Feedback	End Session

Difficulty: Average

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Session Progress

Responses Correct:	0
Responses Incorrect:	70
Responses Total:	70
Responses - % Correct:	0%

Back to Filters

Question 85 of 199

A schoolgirl returns from trip to France with 4-day history of headache, vomiting and fever. On examination, she is alert with neck stiffness and no focal neurology signs. Magnetic resonance imaging (MRI) brain demonstrates no obvious lesions.

Investigations of cerebrospinal fluid (CSF):

Opening pressure	24 cm water (5-18cm)
Protein	0.8 g/l
WCC	110/ml (99% lymphocytes) (<5/ml)
Glucose	3.2 mmol/l (serum glucose 4.0 mmol/l)

What is the most likely diagnosis?

- A

Viral meningitis
- B

Cryptococcal meningitis
- C

Pneumococcal meningitis
- D

Meningococcal meningitis
- E

TB meningitis

9842

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Back to Filters

Question 85 of 199

A schoolgirl returns from trip to France with 4-day history of headache, vomiting and fever. On examination, she is alert with neck stiffness and no focal neurology signs. Magnetic resonance imaging (MRI) brain demonstrates no obvious lesions.

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What is the most likely diagnosis?



- A

Viral meningitis
- B

Cryptococcal meningitis
- C

Pneumococcal meningitis
- D

Meningococcal meningitis
- E

TB meningitis

Explanation



- A

Viral meningitis

A clinical meningitis with an elevated CSF pressure, slightly elevated protein and lymphocytosis is likely to be of viral aetiology, particularly in young previously fit individual.

- B

Cryptococcal meningitis

Cryptococcal and mycoplasma meningitis both give rise to lymphocytic CSF but the cell counts are usually lower (<80/ml) and the glucose reduced. Also, cryptococcal infection is significantly associated with severe T-dysfunction such as immunosuppression from HIV or iatrogenic immunosuppression following organ transplant. The normal MRI also makes this a less likely diagnosis.

- C

Pneumococcal meningitis

This diagnosis is associated with polymorphic cells in the CSF and relatively low glucose, with severe systemic upset and a shorter presentation.

- D

Meningococcal meningitis

This diagnosis is associated with polymorphic cells in the CSF and relatively low glucose, with severe systemic upset and a shorter presentation.

- E

TB meningitis

TB meningitis would result in lymphocytes in the CSF, but it is unlikely given the lack of immunosuppression and travel to a TB-prevalent country. It is also less likely given the absence of meningeal enhancement on the MRI and the short presentation.

9842

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Next Question

Previous Question	Tag Question
Feedback	End Session

Difficulty: Average

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Session Progress

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Responses Incorrect:	71
Responses Total:	71
Responses - % Correct:	0%

Back to Filters

Question 86 of 199

A 31-year-old woman who is 22 weeks pregnant attends the Emergency Department. She is very worried as her 3-year-old son has been sent home from nursery with ‘slapped cheek’ disease.

Which of the following is the most likely complication associated with fetal slapped cheek infection?

- A

Congenital deafness
- B

Hydrops fetalis
- C

Fetal clotting disorder
- D

Fetal polycythaemia
- E

Congenital blindness

18550

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 86 of 199

Which of the following is the most likely complication associated with fetal slapped cheek infection?

- ## B Hydrops fetalis

A Congenital deafness

C Fetal clotting disorder

D Fetal polycythaemia

E Congenital blindness

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[Previous Question](#)

Tag Question

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Session Progress

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Back to Filters

Question 87 of 199

A 26-year-old woman attends the Sexually Transmitted Disease Clinic. She has noticed postcoital pain on a few occasions and some left-sided pelvic pain. There is a history of unprotected sex with three different partners in the last 6 months. Pelvic examination reveals adnexal tenderness. She takes the combined oral contraceptive pill.

Investigations:

Hb	13.4 g/dl
WCC	5.4 × 10 ⁹ /l
PLT	301 × 10 ⁹ /l
K ⁺	5.0 mmol/l
Na ⁺	139 mmol/l
Creatinine	90 mol/l
Chlamydia serology	positive

Select the most appropriate therapy from those given below?

- A

Ciprofloxacin
- B

Penicillin V
- C

Amoxicillin
- D

Doxycycline
- E

Clarithromycin

18620

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 87 of 199

A 26-year-old woman attends the Sexually Transmitted Disease Clinic. She has noticed postcoital pain on a few occasions and some left-sided pelvic pain. There is a history of unprotected sex with three different partners in the last 6 months. Pelvic examination reveals adnexal tenderness. She takes the combined oral contraceptive pill.

Investigations:

Hb	13.4 g/dl
WCC	5.4 × 10 ⁹ /l
PLT	301 × 10 ⁹ /l
K ⁺	5.0 mmol/l
Na ⁺	139 mmol/l
Creatinine	90 mol/l
Chlamydia serology	positive



Select the most appropriate therapy from those given below?

- A

Ciprofloxacin
- B

Penicillin V
- C

Amoxicillin
- D

Doxycycline
- E

Clarithromycin

Explanation



- D

Doxycycline

Doxycycline given at a dose of 100 mg bd is an appropriate therapy for chlamydia infection. An alternative is azithromycin, which is an attractive alternative as it can be given as a single dose. Sexual contacts should also be traced and treated if possible. A significant number of female patients infected with chlamydia may go on to develop pelvic inflammatory disease. One case series unfortunately estimated that the diagnosis is missed in nearly 50% of Emergency Room attendees.

- A

Ciprofloxacin

Ciprofloxacin is a second-generation fluoroquinolone which selectively inhibit type II topoisomerases, causing DNA unwinding in bacterial cells. It is used for respiratory tract infections, cellulitis, urinary tract infections, prostatitis, endocarditis, gastroenteritis and otitis externa.

- B

Penicillin V

Penicillin V, or phenoxymethylpenicillin, is a β-lactam bactericidal antibiotic indicated in streptococcal throat infections, otitis media and cellulitis and can be used prophylactically following splenectomy.

- C

Amoxicillin

It is a β-lactam antibiotic used for the treatment of streptococcal throat infections, lower respiratory tract infections, cellulitis and urinary tract infections.

- E

Clarithromycin

It binds to 23S rRNA in the bacterial ribosome preventing translation of peptides and is used for the treatment of streptococcal throat infection, lower respiratory tract infection, *Helicobacter pylori* infection and Lyme disease.

18620

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Next Question

Previous Question	Tag Question
Feedback	End Session

Difficulty: Average

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	73
Responses Total:	73
Responses - % Correct:	0%

Back to Filters

Question 88 of 199

An 18-year-old man returns from a trip helping a school project in the remote Thai jungle. Soon after returning home he began suffering from a severe fever accompanied by facial flushing and a severe headache with retro-orbital pain. There is also myalgia and joint pains; most recently he has noticed bleeding from around his gums. On examination he has a pyrexia of 41°C, a blood pressure of 110/70 mmHg and a pulse of 100 bpm. There is a maculopapular rash, and you also notice some petechiae and bleeding from the site where you took blood.

Blood test results:

Hb	10.5 g/dl
WCC	9.1 × 10 ⁹ /l (lymphocytosis)
PLT	40 × 10 ⁹ /l
Na ⁺	133 mmol/l
K ⁺	5.5 mmol/l
Creatinine	185 μmol/l
Alanine aminotransferase (ALT)	209 U/l
Prothrombin time	25.2 s
Thick and thin film	negative

Choose the most appropriate diagnosis from those given above?

- A

Typhoid fever
- B

Dengue fever
- C

Malaria
- D

Weil's disease
- E

Japanese encephalitis

18621

Submit

Previous Question

Skip Question

Calculator

✔

Normal Values

✔

Back to Filters

Question 88 of 199

An 18-year-old man returns from a trip helping a school project in the remote Thai jungle. Soon after returning home he began suffering from a severe fever accompanied by facial flushing and a severe headache with retro-orbital pain. There is also myalgia and joint pains; most recently he has noticed bleeding from around his gums. On examination he has a pyrexia of 41°C, a blood pressure of 110/70 mmHg and a pulse of 100 bpm. There is a maculopapular rash, and you also notice some petechiae and bleeding from the site where you took blood.

Blood test results:

Hb	10.5 g/dl
WCC	9.1 × 10 ⁹ /l (lymphocytosis)
PLT	40 × 10 ⁹ /l
Na ⁺	133 mmol/l
K ⁺	5.5 mmol/l
Creatinine	185 μmol/l
Alanine aminotransferase (ALT)	209 U/l
Prothrombin time	25.2 s
Thick and thin film	negative

Choose the most appropriate diagnosis from those given above

- A Typhoid fever
- B Dengue fever
- C Malaria
- D Weil’s disease
- E Japanese encephalitis

Explanation

- B Dengue fever

Dengue fever is endemic in tropical South-East Asia, and outbreaks have also occurred in the tropical regions of Australia. The illness is a haemorrhagic fever, carried by the *Aedes* mosquito and is caused by the dengue virus. It is characterised by fever, severe headache and facial flushing. In the early stages there is a lymphocytosis, with later lymphopenia, thrombocytopenia and bleeding. Treatment is supportive.

- A Typhoid fever

Typhoid fever is caused by *Salmonella* subspecies, typically 10–20 days following exposure. It causes a high fever, dry cough, malaise, abdominal pain following by green diarrhoea and hepatosplenomegaly and in the final stages it can cause complications in multiple organs. There can be associated bradycardia as well. Diagnosis is by culture, and treatment is usually with azithromycin, but if severe then IV ceftriaxone is used. This patient’s tachycardia, renal injury and thrombocytopenia make this a less likely diagnosis.

- C Malaria

Malaria is a protozoal disease caused by species of the *Plasmodium* genus. It can occur following mosquito bites in the tropics. It is associated with fever, headache, cough, myalgia, gastrointestinal upset, splenomegaly, hepatomegaly and jaundice. In severe disease bleeding, renal injury and hypoglycaemia can occur. Diagnosis is by thick and thin blood smears stained with Giemsa stain. Thrombocytopenia and anaemia are common, as are abnormal LFTs, but the absence of jaundice and the rapid progression make this a less likely diagnosis. However, two additional thick and thin films should be taken to exclude malaria.

- D Weil’s disease

Weil’s disease is a severe form of leptospirosis. The organisms are spirochaetes which are spread from rat urine into aquatic areas and then contact with abraded skin or mucosa leads to infection. Water activities increase risk. Following an incubation of 1–3 weeks, there is an abrupt onset of fever, headache, myalgia, dry cough and lethargy. This phase may resolve without treatment but can lead to an immune phase with jaundice, abdominal pain, diarrhoea, rash, meningitis and organ failure. It can cause renal failure but is unlikely to explain the thrombocytopenia. There is also no mention of at-risk behaviour such as swimming in possibly contaminated water sources.

- E Japanese encephalitis

This infection is caused by a mosquito-borne flavivirus endemic across Asia. It presents after 5–15 days with fever, headache, diarrhoea and myalgia leading to neurological disease ranging from confusion to coma and commonly seizures. It is associated with leukocytosis and neuroimaging can show bilateral thalamic lesions with haemorrhage. The abnormal liver, renal and haemaglobin tests and severe fever make this an unlikely diagnosis.

18621

Rate this question: ⓧ☆☆☆☆

Next Question

- Previous Question
- Tag Question
- Feedback
- End Session

Difficulty: Average

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	74
Responses Total:	74
Responses - % Correct:	0%

Question 89 of 199

Blood test results:

You suspect cerebral malaria and begin treatment with quinine and doxycycline. The next morning the parasitaemia has risen to 3.2% and his platelet count is $77 \times 10^9/\text{l}$.

11

Skip Question

Question 89 of 199

Blood test results:

Hb	10.5 g/dl
WCC	$10.2 \times 10^9/\text{l}$
PLT	$122 \times 10^9/\text{l}$
Na ⁺	137 mmol/l
K ⁺	4.8 mmol/l
Creatinine	156 $\mu\text{mol/l}$
Parasitaemia	2.5%

Which of the following is the most appropriate next step in therapy?



- | | |
|---|--|
| A | Continue quinine and doxycycline and reassess response in 24 hours |
| B | Add clindamycin |
| C | Add fansidar |
| D | Exchange transfusion |
| E | Change to mefloquine |

- | | |
|---|--|
| A | Continue quinine and doxycycline and reassess response in 24 hours |
|---|--|

Clindamycin, doxycycline or tetracycline can be used with quinine for uncomplicated malaria, but adding clindamycin when doxycycline is already given is of no additional benefit

- | | |
|---|--------------|
| C | Add fansidar |
|---|--------------|

Fansidar is a combination of sulfadoxine and purimethamine which can be used for chloroquine-resistant falciparum malaria, but has severe side-effects such as Steven-Johnson syndrome.

- D Exchange transfusion

Exchange transfusion is the process by which a portion of blood is removed and replaced with transfused blood. This is no longer recommended as a treatment option for malaria.

- | | |
|---|----------------------|
| E | Change to mefloquine |
|---|----------------------|

Mefloquine can be used in combination as part of artesinin-combination treatment for uncomplicated falciparum malaria or on its own for two doses, but would not be recommended for cerebral

[Next Question](#)

[Previous Question](#)

Tag Question

Feedback

End Session

Difficulty: Average

Peer Responses %

0 . 0

Responses Correct:	0
Responses Incorrect:	75
Responses Total:	75
Responses - % Correct:	0%

Back to Filters

Question 90 of 199

A 31-year-old man visits the doctor some 4-5 weeks after returning from a photography trip to mainland China. He admits to having swum in local water on particularly hot days. He has a history of fever, lethargy, myalgia, lack of appetite with vague abdominal pain. On examination you find evidence of an urticarial rash and he has a temperature of 38.1°C. There is generalised lymphadenopathy and evidence of hepatosplenomegaly.

Bloods:

Hb	11.8 g/dl
WCC	7.2 x10 ⁹ /l (marked eosinophilia)
PLT	195 x10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	4.9 mmol/l
Creatinine	130 mol/l
ALT	135 U/l
CXR	Generalised increase in vascular / interstitial markings, lymphadenopathy

Which of the following represents the most likely diagnosis?

- A

Weil’s disease
- B

Dengue fever
- C

Katayama fever
- D

Typhoid fever
- E

Visceral leishmaniasis

18656

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 90 of 199

11

- Explanation 

Katayama fever occurs some 4-6 weeks after infection and is thought to coincide with initial egg release. High worm and egg

A	Weil's disease
---	----------------

- Weil's disease is a severe form of leptospirosis. The organism are

- | | |
|---|--------------|
| B | Dengue fever |
|---|--------------|

D Typhoid fever

- Typhoid fever is caused by *Salmonella* subspecies following

- | | |
|---|------------------------|
| E | Visceral leishmaniasis |
|---|------------------------|

Rate this question:

Tag Question

End Session

Difficulty: Average

Session Progress

Back to Filters

Question 91 of 199

A 23-year-old medical student has returned from a six-week holiday travelling in Kenya. Prior to leaving he took all the relevant immunisations and was taking malaria prophylaxis up until the day he returned. Over the last 12 days he has since been experiencing intermittent fevers and rigors. For the last two days he has also been complaining of drenching night sweats and vomiting.

On examination he appears drowsy but orientated. There is no lymphadenopathy or rash. Cardiovascular and respiratory examinations are unremarkable. Abdominal examination reveals hepatosplenomegaly. Neurological examination is unremarkable

Thin malaria film	negative
Blood cultures	No growth in 24 h
Haemoglobin (Hb)	10.9 g/l
White cell count (WCC)	$9.5 \times 10^9/l$
Platelets	$100 \times 10^9/l$
Na ⁺	129 mmol/l
K ⁺	3.8 mmol/l
Glucose	3.7 mmol/l
Urea	15.6 mmol/l
Creatinine	118 μ mol/l

What is the most likely diagnosis?

- A

Plasmodium falciparum
- B

Typhoid fever
- C

Plasmodium malariae
- D

Paratyphoid fever
- E

Dengue fever

18781

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 91 of 199

A 23-year-old medical student has returned from a six-week holiday travelling in Kenya. Prior to leaving he took all the relevant immunisations and was taking malaria prophylaxis up until the day he returned. Over the last 12 days he has since been experiencing intermittent fevers and rigors. For the last two days he has also been complaining of drenching night sweats and vomiting.

On examination he appears drowsy but orientated. There is no lymphadenopathy or rash. Cardiovascular and respiratory examinations are unremarkable. Abdominal examination reveals hepatosplenomegaly. Neurological examination is unremarkable

Thin malaria film	negative
Blood cultures	No growth in 24 h
Haemoglobin (Hb)	10.9 g/l
White cell count (WCC)	9.5 × 10 ⁹ /l
Platelets	100 × 10 ⁹ /l
Na ⁺	129 mmol/l
K ⁺	3.8 mmol/l
Glucose	3.7 mmol/l
Urea	15.6 mmol/l
Creatinine	118 μmol/l

What is the most likely diagnosis?

- A

Plasmodium falciparum
- B

Typhoid fever
- C

Plasmodium malariae
- D

Paratyphoid fever
- E

Dengue fever

Explanation



- A

Plasmodium falciparum

Plasmodium falciparum malaria is the most likely diagnosis, (given the geographical distribution of falciparum and the fact he has symptoms of cerebral disease). It is important to remember that serial films are required to exclude the diagnosis. Prophylaxis does not give full protection and in addition this patient stopped taking his prophylactic treatment too early, whatever his treatment regime (Atovaquone/proguanil combination should be continued 7 days after return, other drugs such as mefloquine for 4 weeks after return). The incubation period is 1–2 weeks. Patients often give a history of prodromal symptoms of headache, myalgia and anorexia. Signs include anaemia, jaundice and hepatosplenomegaly but without lymphadenopathy. Complications include cerebral malaria, which has a mortality of 20%. Hypoglycaemia occurs in patients who are taking quinine but also is a poor prognostic indicator. Acute renal failure and pulmonary oedema are other less common complications.

- B

Typhoid fever

Typhoid fever is caused by *Salmonella* subspecies following typically 10-20 days. It causes a high fever, dry cough, malaise, abdominal pain following by green diarrhoea and hepatosplenomegaly and in the final stages can causes complications in multiple organs. There can be associated bradycardia as well. Diagnosis is by culture and treatment is usually with azithromycin but if severe then IV ceftriaxone. Typhoid fever is associated with neurological features including headache and confusion, accompanied by vague abdominal symptoms including constipation. Whilst typhoid fever is a good differential for fever and hepatosplenomegaly in the returning traveller, the absence of rash, lymphopenia and diarrhoea makes this a less likely diagnosis and therefore an incorrect choice.

- C

Plasmodium malariae

This is a cause of malaria but is less likely than falciparum because the patient took prophylaxis against malaria and resistance rates are low in malariae. Also, falciparum is far more likely to cause cerebral symptoms than malariae.

- D

Paratyphoid fever

Paratyphoid fever is very similar to typhoid fever except being caused by *S. paratyphi*. The absence of a rash, lymphopenia and diarrhoea makes this diagnosis unlikely as well.

- E

Dengue fever

Dengue fever is endemic in tropical South-East Asia, and outbreaks have also occurred in the tropical regions of Australia. The illness is a haemorrhagic fever, carried by the *Aedes* mosquito and is caused by the Dengue virus. It is characterised by fever, severe headache and facial flushing. Dengue fever usually presents with a morbilliform rash in the trunk area and widespread lymphadenopathy, coupled with severe muscle pains. In the early stages there is a lymphocytosis, with later lymphopenia, thrombocytopenia and bleeding. On examination there may be hepatosplenomegaly. Treatment is supportive. The absence of myalgic features, headache and a rash makes this a less likely diagnosis, and the duration of fever for two weeks is long for dengue and makes it less likely.

18781

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Next Question

Previous Question	Tag Question
Feedback	End Session

Difficulty: Difficult

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	77
Responses Total:	77
Responses - % Correct:	0%

Back to Filters

Question 92 of 199

A 19-year-old woman is brought by her partner to the Emergency department. She has been complaining of worsening headache and neck stiffness over the past few days and is now drowsy and disorientated. On examination she has signs of meningism, a pyrexia 39.0°C, BP 100/60 mmHg and pulse 105/min. There is a purpuric rash.

Investigations;

Hb	12.1 g/dl
WCC	15.1 x10 ⁹ /l
Na ⁺	140 mmol/l
K ⁺	5.0 mmol/l
Creatinine	140 μmol/l
Lumbar puncture	Decreased CSF glucose, increased protein, neutrophils, gram negative diplococci

You commence IV benzylpenicillin and there is initial improvement. 72hrs later however she spikes a new fever of 39°C, with increased eosinophil count in the peripheral blood.

What is the most important management step?



- A

Stop penicillin and substitute an alternative antibiotic
- B

Commence prednisolone
- C

Commence aciclovir
- D

Commence amphotericin
- E

Commence chlorpheniramine

20507

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 92 of 199

A 19-year-old woman is brought by her partner to the Emergency department. She has been complaining of worsening headache and neck stiffness over the past few days and is now drowsy and disorientated. On examination she has signs of meningism, a pyrexia 39.0°C, BP 100/60 mmHg and pulse 105/min. There is a purpuric rash.

Investigations;

Hb	12.1 g/dl
WCC	15.1 x10 ⁹ /l
Na ⁺	140 mmol/l
K ⁺	5.0 mmol/l
Creatinine	140 μmol/l
Lumbar puncture	Decreased CSF glucose, increased protein, neutrophils, gram negative diplococci

You commence IV benzylpenicillin and there is initial improvement. 72hrs later however she spikes a new fever of 39°C, with increased eosinophil count in the peripheral blood.

What is the most important management step?

- AStop penicillin and substitute an alternative antibiotic
- BCommence prednisolone
- CCommence aciclovir
- DCommence amphotericin
- ECommence chlorpheniramine

Explanation

- AStop penicillin and substitute an alternative antibiotic

Penicillin is one of a number of agents which may cause an eosinophilic drug reaction. Other causes include meloxicam, l-tryptophan, dantrolene and ethambutol. Clearly this woman does have meningococcal meningitis given that she presented with fever and menigisms and found to have diplococci in her CSF. As such it is important to continue antibiotic therapy. Alternatives to penicillin include cephalosporins such as ceftriaxone or cefotaxime at high dose. Indeed, most centres use a cephalosporin as first line therapy because of the small risk of meningococcal resistance to penicillin.

- BCommence prednisolone

This is a very tempting option as the patient likely has suffered a drug reaction. However, removing the offending drug is a far more sensible option than using prednisolone to mitigate the drug reaction.

- CCommence aciclovir

This would be the correct treatment option for viral meningitis but the presence of diplococci in the blood film and purpuric rash on presentation makes this an unlikely diagnosis and therefore makes acyclovir an inappropriate treatment option.

- DCommence amphotericin

Amphotericin is a potent antifungal medication which can be used against systemic aspergillus which can be a cause of eosinophilia. However, there is very strong evidence for bacterial, not fungal, infection, and this is a very unlikely diagnosis given the original presentation of meningism, purpuric rash and fever.

- ECommence chlorpheniramine

Chlorphenamine is an antipruritic medication which would only provide symptomatic relief against itch and therefore not address the underlying problem. Given that there is a fever and haematological evidence of eosinophilia an underlying cause should be sought and addressed.

20507

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Next Question

- Previous Question
- Tag Question
- Feedback
- End Session

Difficulty: Average

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	78
Responses Total:	78
Responses - % Correct:	0%

Back to Filters

Question 93 of 199

An 18-year-old man was admitted to the Emergency unit with a headache and neck stiffness. On examination he was pyrexial 38.8°C, with a BP of 95/60 mmHg and a pulse of 105/min and had a purpuric rash. There was significant neck stiffness with signs of meningism. Apparently three other cases of meningococcal group C meningitis have been reported in the past two weeks at his university.

Investigations:

Hb	13.1 g/dl
WCC	13.9 x10 ⁹ /l
PLT	140 x10 ⁹ /l
Na ⁺	138 mmol/l
K ⁺	5.3 mmol/l
Creatinine	157 mol/l
Lumbar puncture	Gram negative diplococci identified

Which of the following would be the most appropriate prophylaxis against infection for his girlfriend, (she uses the oral contraceptive pill and refuses to use other forms of contraception)?

- A

Rifampicin PO for 2 days
- B

Meningococcal group C vaccination
- C

Penicillin V PO for 7 days
- D

Single dose oral ciprofloxacin
- E

IV Immunoglobulin

20508

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 93 of 199

Investigations:

Hb	13.1 g/dl
WCC	13.9 x10 ⁹ /l
PLT	140 x10 ⁹ /l
Na ⁺	138 mmol/l
K ⁺	5.3 mmol/l
Creatinine	157 mol/l
Lumbar puncture	Gram negative diplococci identified



- | | |
|---|-----------------------------------|
| A | Rifampicin PO for 2 days |
| B | Meningococcal group C vaccination |
| C | Penicillin V PO for 7 days |
| D | Single dose oral ciprofloxacin |
| E | IV Immunoglobulin |

- | | |
|---|--------------------------------|
| D | Single dose oral ciprofloxacin |
|---|--------------------------------|

A	Rifampicin PO for 2 days
---	--------------------------

B Meningococcal group C vaccination

C	Penicillin V PO for 7 days
---	----------------------------

E	IV Immunoglobulin
---	-------------------

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Next Question

Tag Question

End Session

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Session Progress

Responses Correct:	0
Responses Incorrect:	79
Responses Total:	79
Responses - % Correct:	0%

Back to Filters

Question 94 of 199

A 40-year-old man who has sex with other men presents to the GP some six weeks after returning from a holiday to Thailand with a maculopapular rash. He denies sexual intercourse during the course of his holiday. During his holiday he went trekking through the jungle. The only thing he remembers is a very odd single lesion that looked like a large warty lump on his arm which formed during his holiday and then healed up.

Investigations:

Hb	12.0 g/dl
WCC	5.9 x10 ⁹ /l
PLT	234 x10 ⁹ /l
Na ⁺	140 mmol/l
K ⁺	5.0 mmol/l
Creatinine	100 µmol/l
P24	negative
TPHA	positive

Which of the following is the most likely diagnosis?

- A

HIV infection
- B

Syphilis infection
- C

Yaws infection
- D

Tungiasis
- E

Leishmaniasis

20509

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 94 of 199

HB	12.0 g/dl
WCC	5.9 x10 ⁹ /l
PLT	234 x10 ⁹ /l
Na ⁺	140 mmol/l
K ⁺	5.0 mmol/l
Creatinine	100 μmol/l
P24	negative
TPHA	positive

- | | |
|---|--------------------|
| A | HIV infection |
| B | Syphilis infection |
| C | Yaws infection |
| D | Tungiasis |
| E | Leishmaniasis |

- | | |
|---|----------------|
| C | Yaws infection |
|---|----------------|

A	HIV infection
---	---------------

This is a **cohort study** because the subjects are followed up over time.

- | | |
|---|---------------|
| A | HIV infection |
|---|---------------|
- This is a **cohort study** because the subjects are followed up over time.

B Syphilis infection

- B Syphilis infection

D	Tungiasis
---	-----------

- | | |
|---|-----------|
| D | Tungiasis |
|---|-----------|

E	Leishmaniasis
---	---------------

- | | |
|---|---------------|
| E | Leishmaniasis |
|---|---------------|

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Next Question

[Previous Question](#)

Tag Question

Feedback

End Session

Continuity of Care

Session Progress

Responses Correct:	0
Responses Incorrect:	80
Responses Total:	80
Responses - % Correct:	0%

Back to Filters

Question 95 of 199

A 50-year-old Jamaican lady who migrated to the UK around 20 years of age, presented with lethargy and breathlessness. She has never been out of UK since, has no history of recent travel, no previous medical history. Occasionally she suffers abdominal pain, diarrhoea and intermittent abdominal bloating.

Investigations:

Hb	10.5 g/dl
WCC	8.1 x10 ⁹ /l, (Eosinophil 1.5)
PLT	210 x10 ⁹ /l
Na ⁺	140 mmol/l
K ⁺	5.0 mmol/l
Creatinine	130 μmol/l
CXR	No cysts seen

Which of the following is the most likely underlying cause for her presentation?

- A

Ascaris
- B

Enterobius
- C

Strongyloides
- D

Echinococcus
- E

Schistosomiasis

20535

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 95 of 199

A 50-year-old Jamaican lady who migrated to the UK around 20 years of age, presented with lethargy and breathlessness. She has never been out of UK since, has no history of recent travel, no previous medical history. Occasionally she suffers abdominal pain, diarrhoea and intermittent abdominal bloating.

Investigations:

Hb	10.5 g/dl
WCC	8.1 x10 ⁹ /l, (Eosinophil 1.5)
PLT	210 x10 ⁹ /l
Na ⁺	140 mmol/l
K ⁺	5.0 mmol/l
Creatinine	130 µmol/l
CXR	No cysts seen

Which of the following is the most likely underlying cause for her presentation?

- AAscaris
- BEnterobius
- CStrongyloides
- DEchinococcus
- ESchistosomiasis

Explanation

CStrongyloides

This woman has evidence of a parasitic infection, consistent with the likely anaemia of chronic disease seen here and hypereosinophilia. Strongyloides is characterised by pulmonary infiltration, perhaps accounting for the shortness of breath seen here. Ivermectin and thiabendazole are the treatments of choice for strongyloides. Although she has not travelled abroad for many years it is highly likely she may have undergone a repeat cycle of subclinical infection.

AAscaris

Ascaris is caused by the nematode *Ascaris lumbricoides*. Transmitted through a faecal-oral route it migrates through the liver and lungs before settling in the small bowel. Often asymptomatic but can obstruct small bowels, bile ducts and pancreatic duct. Therefore, complications can include acute bowel obstruction, pancreatitis and cholangitis. Eosinophilia occurs as well. The patient’s symptoms makes this a less likely diagnosis.

BEnterobius

Enterobius vermicularis are commonly known as threadworms causing anal itch as they lay eggs on the perineum. Diagnosis can be made using sticky tape to demonstrate eggs. This diagnosis does not match the symptoms described at all.

DEchinococcus

Echinococcus species cause cystic hydatid diseases as zoonosis, commonly in rural areas, especially in sheep-farming regions. Cysts may be present in multiple organs and can present with symptoms related to where they are present. Hepatic cysts can cause obstructive jaundice, lung cysts can cause dyspnoea, chest pain and haemoptysis, CNS cysts can cause space-occupying signs. Other cysts are likely to be asymptomatic. The absence of any cysts on the CXR makes this an unlikely diagnosis.

ESchistosomiasis

This is a type of trematodes which are released from their snail hosts into water where they can cause itchy popular rashes. They then migrate to the liver via the lungs over two weeks to cause fever, urticarial, diarrhoea, cough, wheeze and hepatosplenomegaly. The latter is also called Katayama fever. Alternatively, migration can occur into bladder causing frequency, dysuria, haematuria and incontinence. The absence of the type of symptoms described above and the absence to fresh-water exposure in endemic areas makes this a less likely diagnosis.

20535

Rate this question: 5 stars

Next Question

Previous Question

Tag Question

Feedback

End Session

Difficulty: Average

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	81
Responses Total:	81
Responses - % Correct:	0%

Back to Filters

Question 96 of 199

A 25-year-old man who has recently returned from a trip to Africa attends the clinic because he is feeling unwell. You understand that he had been swimming in a local river each day, while helping out on a school building project. After swimming he noticed an itchy rash on his skin. Around a week later he returned to the UK. Another 4 weeks passed, and symptoms of a viral illness have now developed including fever, myalgia, headache and lethargy. He is pyrexial 38.5oC.

Investigations

Hb	11.9 g/l
WCC	8.0 x10 ⁹ /l (Increased eosinophil count)
PLT	290 x10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	4.8 mmol/l
Creatinine	120 μmol/l
ALT	62 U/l
CXR	General increase in vascular and interstitial marking
ESR	46 mm/hr

Which of the following is the most appropriate treatment for this condition?

- A

Quinine sulphate
- B

Paracetamol
- C

Praziquantel
- D

Primaquine
- E

Ciprofloxacin

20544

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 96 of 199

Investigations

Hb	11.9 g/l
WCC	8.0 x10 ⁹ /l (Increased eosinophil count)
PLT	290 x10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	4.8 mmol/l
Creatinine	120 μmol/l
ALT	62 U/l
CXR	General increase in vascular and interstitial marking
ESR	46 mm/hr

15

- | | |
|---|------------------|
| A | Quinine sulphate |
| B | Paracetamol |
| C | Praziquantel |
| D | Primaquine |
| E | Ciprofloxacin |

- | | |
|---|--------------|
| C | Praziquantel |
|---|--------------|

A	Quinine sulphate
---	------------------

B	Paracetamol
---	-------------

- This would be part of supportive management if a diagnosis such as dengue fever was suspected. Whilst dengue could explain the myalgia, headache and fever, the incubation period is too long.

D	Primaquine
---	------------

- This is a treatment option for malaria making it an incorrect choice.

Rate this question:

Next Question

Tag Question

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Difficulty: Average

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	82
Responses Total:	82
Responses - % Correct:	0%

Back to Filters

Question 97 of 199

A 24-year-old man with Type 1 diabetes comes to the Emergency room with severe ear ache and discharge. He has recently returned from a holiday in the Dominican Republic where he regularly swam in the hotel pool. He saw his GP one week early and was prescribed co-amoxiclav, but his girlfriend thinks that the problem is getting worse and she can now see the infection around his ear. On examination he appears to have a severe otitis externa with a discharge, and evidence of spreading superficial skin infection.

Which of the following represents the most likely infectious agent?

A	Staphylococcus aureus
B	Staphylococcus epidermidis
C	Pseudomonas aeruginosa
D	Streptococcus pneumoniae
E	Streptococcus pyogenes

20545

Submit

Previous QuestionSkip Question


Calculator

Normal Values

Question 97 of 199

ent

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Explanation 

This man has presented with so called “Swimmer’s Ear” due to

S. aureus is a gram-positive commensal pathogen which can cause

S. epidermidis is a coagulase negative species of Staphylococcus.

Streptococci are gram-positive diplococci, of which *S. pneumoniae*

S. pyogenes is a group A Streptococcus, referring to the Lancefield

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Responses Correct: 0

Back to Filters

Question 98 of 199

A 42 year old man attends the clinic complaining of diarrhoea, fatigue, fevers and right upper quadrant pain. On examination he looks very thin and has tender hepatosplenomegaly and lymphadenopathy. He attends with his male partner who is very concerned about him.

Investigations:

Hb	10.9 g/dl
WCC	3.9 x10 ⁹ /l
PLT	90 x10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	4.6 mmol/l
Creatinine	100 mol/l
Alanine aminotransferase (ALT)	184 U/l
Alkaline phosphatase	282 U/l
CT abdomen	Retroperitoneal, para-aortic lymphadenopathy and hepatosplenomagaly
Small bowel biopsy	Acid-fast bacteria (AFB) seen, MTB PCR negative

Which of the following is the most likely diagnosis?

- A

Cytomegalovirus (CMV) infection
- B

Cryptosporidium
- C

Mycobacterium avium
- D

Myocbacterium tuberculosis
- E

Tropical sprue

20591

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 98 of 199

investigations:

Hb	10.9 g/dl
WCC	3.9 x10 ⁹ /l
PLT	90 x10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	4.6 mmol/l
Creatinine	100 μmol/l
Alanine aminotransferase (ALT)	184 U/l
Alkaline phosphatase	282 U/l
CT abdomen	Retroperitoneal, para-aortic lymphadenopathy and hepatosplenomegaly
Small bowel biopsy	Acid-fast bacteria (AFB) seen, MTB PCR negative



- | | |
|---|-----------------------------------|
| A | Cytomegalovirus (CMV) infection |
| B | <i>Cryptosporidium</i> |
| C | <i>Mycobacterium avium</i> |
| D | <i>Myocbacterium tuberculosis</i> |
| E | Tropical sprue |

- | | |
|---|----------------------------|
| C | <i>Mycobacterium avium</i> |
|---|----------------------------|

A Cytomegalovirus (CMV) infection

B *Cryptosporidium*

D *Mycobacterium tuberculosis*

E Tropical sprue

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Tag Question

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Peer Responses to

Responses Incorrect:	84
Responses Total:	84
Responses - % Correct:	0%

Question 99 of 199

Investigations:

Which of the following HIV medications is most likely to be associated with the above blood picture?



Skip Question

Back to Filters

Question 99 of 199

You are asked to review a 35-year-old African man with a history of HIV who has been admitted to the cardiology ward after a myocardial infarction. He has not brought his anti-viral medications into the hospital with him as he collapsed at a restaurant. On examination he has peripheral fat loss and increased abdominal obesity.

Investigations:

Hb	11.4 g/dl
WCC	$5.6 \times 10^9/l$
PLT	$204 \times 10^9/l$
Na ⁺	139 mmol/l
K ⁺	5.3 mmol/l
Creatinine	130 μ mol/l
Triglycerides	3.1 mmol/l
HDL	0.7 mmol/l
LDL	3.4 mmol/l
Glucose	8.7 mmol/l

Which of the following HIV medications is most likely to be associated with the above blood picture?



- A

Fosamprenavir
- B

Zidovudine
- C

Indinavir
- D

Maraviroc
- E

Abacavir

Explanation



- B

Zidovudine

Zidovudine is a nucleoside reverse-transcriptase inhibitor and was the first medication developed against HIV. Zidovudine is associated with fat redistribution and biochemical changes consistent with the insulin resistant phenotype seen here; this HIV lipodystrophy picture tends to be worse with zidovudine compared with newer agents. Fosamprenavir, indinavir and abacavir are also associated with insulin resistance but to a lesser extent.

- A

Fosamprenavir

Fosamprenavir is a protease inhibitor most commonly used in combination with ritonavir (boosted fosamprenavir). Previously used as a third agent in HAART the British HIV Association (BHIVA) no longer recommends it due to side effects. Though its use is associated with insulin resistance, an alternative option is more likely to have caused the fat lipoatrophy described.

- C

Indinavir

Indinavir is a protease inhibitor which is no longer recommended for routine use by the British HIV Association (BHIVA) and has been associated with increased risk of cardiovascular disease. Although indinavir is associated with insulin resistance, an alternative drug is more likely to have caused the described lipoatrophy.

- D

Maraviroc

Maraviroc is a CCR5 inhibitor (entry inhibitor). It is only effective in people infected with CCR5 trophic HIV (ie not CXCR4) and therefore testing is required prior to its use. Insulin resistance and lipoatrophy are not commonly associated with maraviroc use.

- E

Abacavir

Abacavir is a nucleoside reverse transcriptase inhibitor (NRTI). It is recommended by the British HIV Association (BHIVA) in association with lamivudine as an alternative to Truvada as part of a HAART regime. Abacavir cannot be used in patients who are HLA-B5701 positive due to a high risk of hypersensitivity. Abacavir may be associated with insulin resistance and lipodystrophy, but to a lesser extent than zidovudine.

20626

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Next Question

- Previous Question

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- Tag Question

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Difficulty: Average

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	85
Responses Total:	85
Responses - % Correct:	0%

Back to Filters

Question 100 of 199

A 19-year-old student who has been travelling in Thailand presents for review with symptoms of severe influenza. He has made a point of visiting street markets and staying in small local Thai hostels during his visit. You understand that a father and son who work in the poultry market near to where he has been staying recently died of H5N1 influenza. Both were treated with oseltamivir. On examination his blood pressure is 105/70 mmHg, pulse is 100 bpmn. He is pyrexial at 38.5°C. On examination he has severe shortness of breath and there are scattered crackles throughout both lung fields.

Investigations:

Hb	14.0 g/dl
WCC	10.1 × 10 ⁹ /l
PLT	295 × 10 ⁹ /l
Na ⁺	140 mmol/l
K ⁺	5.0 mmol/l
Creatinine	130 μmol/l
Chest X-ray	Patchy consolidation through both lung fields

Which of the following represents the most appropriate treatment?

- A

IV Cefotaxime
- B

Inhaled zanamivir
- C

Oral amantadine
- D

Oral co-amoxiclav
- E

Oral oseltamivir

20627

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 100 of 199

A 19-year-old student who has been travelling in Thailand presents for review with symptoms of severe influenza. He has made a point of visiting street markets and staying in small local Thai hostels during his visit. You understand that a father and son who work in the poultry market near to where he has been staying recently died of H5N1 influenza. Both were treated with oseltamivir. On examination his blood pressure is 105/70 mmHg, pulse is 100 bpmn. He is pyrexial at 38.5°C. On examination he has severe shortness of breath and there are scattered crackles throughout both lung fields.

Investigations:

Hb	14.0 g/dl
WCC	10.1 × 10 ⁹ /l
PLT	295 × 10 ⁹ /l
Na ⁺	140 mmol/l
K ⁺	5.0 mmol/l
Creatinine	130 μmol/l
Chest X-ray	Patchy consolidation through both lung fields

Which of the following represents the most appropriate treatment?

- A

IV Cefotaxime
- B

Inhaled zanamivir
- C

Oral amantadine
- D

Oral co-amoxiclav
- E

Oral oseltamivir

Explanation



- B

Inhaled zanamivir

Zanamavir is a neuraminidase inhibitor shown to reduce the associated morbidity in severe influenza. It can be delivered by inhalation or intravenously. In this case the patient is at high risk of avian influenza (H5N1) and we have been told that two other patients died despite treatment with oseltamivir. There is less known resistance to zanamavir and therefore this should be the treatment of choice.

- A

IV Cefotaxime

Cefotaxime is a broad spectrum third- generation cephalosporin with activity against both Gram-positive and Gram-negative bacteria. Although in this scenario it would be prudent to cover for potential bacterial pneumonia, this patient is at very high risk of avian influenza and the blood picture would be more typical of a viral infection; therefore the definitive treatment of choice should be an antiviral with activity against influenza.

- C

Oral amantadine

Amantadine is a drug used both as an antiviral and for the treatment of Parkinson’s disease. Its use against influenza has been superceded by the neuraminidase inhibitors in recent years due to concerns regarding resistance and efficacy. Additionally influenza B is intrinsically resistant to amantadine.

- D

Oral co-amoxiclav

Co-amoxiclav is a penicillin-based antibiotic which is a combination of amoxicillin and clavulinic acid; it has a broad-spectrum of activity against Gram-negative, Gram-positive and anaerobic bacteria. In this case the history is suggestive of a viral rather than a bacterial infection and therefore the definitive treatment would be an antiviral.

- E

Oral oseltamivir

Oseltamivir is a neuraminidase inhibitor shown to reduce the morbidity associated with severe influenza. However there is recognised resistance to oseltamivir and we are told that two patients have died despite its use. Zanamivir would therefore be a more appropriate choice as resistance is less likely.

20627

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Next Question

Previous Question	Tag Question
Feedback	End Session

Difficulty: Average

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	86
Responses Total:	86
Responses - % Correct:	0%

Back to Filters

Question 101 of 199

A 79-year-old woman has become drowsy and confused and is exhibiting signs of a left-sided weakness. She has been brought to the hospital by her home help. Apparently she has been unwell for a few days with diarrhoea after eating some French soft cheese. On examination she is drowsy with a blood pressure of 124/77 mmHg, pulse of 95 bpm and a temperature of 38.5°C. She is neglecting her left side with a 3/5 power weakness on examination.

Investigations:

Hb	12.1 g/dl
WCC	15.2 × 10 ⁹ /l
PLT	120 × 10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	4.9 mmol/l
Creatinine	120 μmol/l
CT head	No focal lesion identified
Lumbar puncture	Gram positive rods, low CSF glucose

Which of the following is the most likely causative organism?



- A

Meningococcus
- B

Listeria
- C

Klebsiella
- D

Pseudomonas
- E

Mycoplasma

20976

Submit

Previous Question

Skip Question

Calculator

✔

Normal Values

✔

Question 101 of 199

investigations.

Hb	12.1 g/dl
WCC	$15.2 \times 10^9/l$
PLT	$120 \times 10^9/l$
Na ⁺	139 mmol/l
K ⁺	4.9 mmol/l
Creatinine	120 μ mol/l
CT head	No focal lesion identified
Lumbar puncture	Gram positive rods, low CSF glucose

- | | |
|---|--------------------|
| A | Meningococcus |
| B | <i>Listeria</i> |
| C | <i>Klebsiella</i> |
| D | <i>Pseudomonas</i> |
| E | <i>Mycoplasma</i> |

- | | |
|---|-----------------|
| B | <i>Listeria</i> |
|---|-----------------|

The clear clue here is the consumption of soft cheese, which may be unpasteurised and is not recommended for the elderly or for people who are pregnant. *Listeria* is a motile non-spore-forming Gram-positive bacillus. CNS infection can manifest as meningitis, meningoencephalitis or even with symptoms of hemiparesis, mimicking a stroke. Amoxicillin is the treatment of choice for *Listeria* CNS infection. It is worth noting that cephalosporins such as ceftriaxone commonly used empirically to treat meningitis have no activity against *Listeria* and therefore if the diagnosis is suspected (eg in the elderly), amoxicillin should be included in the treatment regime.

- | | |
|---|---------------|
| A | Meningococcus |
|---|---------------|

Neisseria meningitidis (meningococcus) is a Gram-negative diplococcus which is the most common cause of bacterial meningitis in the UK. Symptoms are typically fever, headache, neck stiffness, photophobia and vomiting with or without a non-blanching rash. Treatment is with IV ceftriaxone. In this case the risk factors, presentation and CSF findings point to an alternative diagnosis.

- | | |
|---|-------------------|
| C | <i>Klebsiella</i> |
|---|-------------------|

Klebsiella is a genus of Gram-negative bacteria. It is a commensal of the human gut and most commonly causes intra-abdominal or urinary infections. CNS infection is very uncommon outside of neonates and neurosurgery patients.

- | | |
|---|--------------------|
| D | <i>Pseudomonas</i> |
|---|--------------------|

Pseudomonas is a Gram-negative bacterium which is intrinsically quite antibiotic resistant. CNS infection is very uncommon.

- | | |
|---|-------------------|
| E | <i>Mycoplasma</i> |
|---|-------------------|

Mycoplasma is an atypical bacterium lacking a cell wall. Infection most commonly presents with a community-acquired pneumonia; however extrapulmonary disease including an encephalitis is possible (although more common in children). In this case we are told the Gram stain shows Gram-positive rods, which excludes *Mycoplasma* as a possible cause.

Rate this question:

Next Question

[Previous Question](#)

Tag Question

Feedback

End Session

Difficulty: Average

Peer Response 73

Session Progress

Responses Correct:	0
Responses Incorrect:	87
Responses Total:	87
Responses - % Correct:	0%

Question 102 of 199

Investigations:

Hb	11.1 g/dl
WCC	$13.1 \times 10^9/l$
PLT	$145 \times 10^9/l$
Na ⁺	139 mmol/l
K ⁺	4.9 mmol/l
Creatinine	90 μmol/l
Urine	Nitrites, blood and protein ++



- | | |
|---|---------------------------------|
| A | <i>Escherichia coli</i> |
| B | <i>Klebsiella</i> |
| C | <i>Proteus</i> |
| D | <i>Enterobacter</i> |
| E | <i>Streptococcus agalactiae</i> |

Submit

[Previous Question](#)

Skip Question

Calculator

Normal Values

Question 102 of 199

Investigations:

Hb	11.1 g/dl
WCC	$13.1 \times 10^9/\text{l}$
PLT	$145 \times 10^9/\text{l}$
Na ⁺	139 mmol/l
K ⁺	4.9 mmol/l
Creatinine	90 μmol/l
Urine	Nitrites, blood and protein ++

3

- | | |
|---|---------------------------------|
| A | <i>Escherichia coli</i> |
| B | <i>Klebsiella</i> |
| C | <i>Proteus</i> |
| D | <i>Enterobacter</i> |
| E | <i>Streptococcus agalactiae</i> |

- | | |
|---|-------------------------|
| A | <i>Escherichia coli</i> |
|---|-------------------------|

Trimethoprim is contraindicated in the first trimester, however its

- | | |
|---|-------------------|
| B | <i>Klebsiella</i> |
|---|-------------------|

Although this is a recognised cause of urinary tract infections

- | | |
|---|----------------|
| C | <i>Proteus</i> |
|---|----------------|

Proteus is a Gram-negative bacterium which colonises the human

- D *Enterobacter*

Enterobacter is a Gram-negative bacterium which colonises the

- | | |
|---|---------------------------------|
| E | <i>Streptococcus agalactiae</i> |
|---|---------------------------------|

S. agalactiae (group B strep) is a Gram-positive streptococcus

20977

Next Question

[Previous Question](#)

Tag Question

Feedback

End Session

Difficulty: Average

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	88
Responses Total:	88
Responses - % Correct:	0%

Question 103 of 199

Investigations:

Hb	11.0 g/dl
WCC	$10.9 \times 10^9/l$
PLT	$120 \times 10^9/l$
Na ⁺	140 mmol/l
K ⁺	4.9 mmol/l
Creatinine	130 μmol/l
Lumbar puncture	Turbid appearance, 22 cm water opening pressure, elevated CSF protein, lymphocytes ++, neutrophils +
India ink test	Positive

-
-
-

- | | |
|---|---|
| A | Herpes simplex encephalitis |
| B | Cytomegalovirus (CMV) meningoencephalitis |
| C | Cryptococcal meningitis |
| D | Meningococcal meningitis |
| E | Tuberculous meningitis |

Submit

[Previous Question](#)

Skip Question

Calculator

Normal Values

Question 103 of 199

WCC	$10.9 \times 10^9/l$
PLT	$120 \times 10^9/l$
Na ⁺	140 mmol/l
K ⁺	4.9 mmol/l
Creatinine	130 μmol/l
Lumbar puncture	Turbid appearance, 22 cm water opening pressure, elevated CSF protein, lymphocytes ++, neutrophils +
India ink test	Positive

Which of the following is the most likely diagnosis?

- | | |
|---|---|
| A | Herpes simplex encephalitis |
| B | Cytomegalovirus (CMV) meningoencephalitis |
| C | Cryptococcal meningitis |
| D | Meningococcal meningitis |
| E | Tuberculous meningitis |

- | | |
|---|-------------------------|
| C | Cryptococcal meningitis |
|---|-------------------------|
- Cryptococcus neoformans* is a yeast (fungus) which can cause a

A Herpes simplex encephalitis

Herpes simplex encephalitis is most commonly caused by HSV-1

B Cytomegalovirus (CMV) meningoencephalitis

D	Meningococcal meningitis
---	--------------------------

E	Tuberculous meningitis
---	------------------------

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[Previous question](#)

Tag question

1. **Introduction**

[illegible]

100

Responses incorrect:	0%
Responses Total:	89
Responses - % Correct:	0%

Back to Filters

Question 104 of 199

A 28-year-old man is diagnosed with HIV. He is treated with an abacavir containing HAART regimen. He attends his regular clinic appointment some 6 months later and complains of increased shortness of breath, with difficulty walking up stairs, and the fact that he wakes short of breath at night. On examination his blood pressure is 110/70 mmHg, pulse is 85 bpm. He has bilateral crackles on auscultation of the lungs.

Investigations:

Hb	10.2 g/dl
WCC	4.9 × 10 ⁹ /l
PLT	102 × 10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	4.9 mmol/l
Creatinine	102 μmol/l
Echo	Cardiomyopathy

Which of the following is the most likely diagnosis?



- A

Abacavir hypersensitivity
- B

Autoimmune cardiomyopathy
- C

Viral myocarditis
- D

Nucleoside reverse transcriptase inhibitor related cardiomyopathy
- E

Ischaemic cardiomyopathy

20979

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 104 of 199

A 28-year-old man is diagnosed with HIV. He is treated with an abacavir containing HAART regimen. He attends his regular clinic appointment some 6 months later and complains of increased shortness of breath, with difficulty walking up stairs, and the fact that he wakes short of breath at night. On examination his blood pressure is 110/70 mmHg, pulse is 85 bpm. He has bilateral crackles on auscultation of the lungs.

Investigations:

Hb	10.2 g/dl
WCC	4.9 × 10 ⁹ /l
PLT	102 × 10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	4.9 mmol/l
Creatinine	102 μmol/l
Echo	Cardiomyopathy

Which of the following is the most likely diagnosis?



- A

Abacavir hypersensitivity
- B

Autoimmune cardiomyopathy
- C

Viral myocarditis
- D

Nucleoside reverse transcriptase inhibitor related cardiomyopathy
- E

Ischaemic cardiomyopathy

Explanation



- D

Nucleoside reverse transcriptase inhibitor related cardiomyopathy

Nucleoside reverse transcriptase inhibitor (NRTI) therapy is thought to reduce vascular responsiveness to acetylcholine, and hence lead to endothelial dysfunction. Mitochondrial dysfunction induced by HAART may also lead to decreased myocardial contractility. This is because cardiac myocytes can utilise energy less well, leading to decreased ejection fraction and dilative cardiomyopathy.

- A

Abacavir hypersensitivity

Abacavir is a nucleoside reverse transcriptase inhibitor (NRTI). It is recommended by the British HIV Association (BHIVA) in association with lamivudine as an alternative to Truvada as part of a HAART regime. Abacavir causes a hypersensitivity reaction in patients who are HLA-B5701 positive. However this would occur within 1-2 months of starting treatment and in the UK all patients would be tested prior to initiation. It is typified by nausea, vomiting, malaise and fever, with or without a rash.

- B

Autoimmune cardiomyopathy

Cardiomyopathy may be associated with autoimmune disease (eg lupus, sarcoid, vasculitis). However you might expect the patient to have a history of autoimmune disease and in this case an alternative explanation is more likely.

- C

Viral myocarditis

Viral infection is a common cause of myocarditis and is certainly possibly in this case. However you would typically expect to have a history of fever and possible recent viral symptoms (eg coryza, myalgia). In this case an alternative aetiology is more likely.

- E

Ischaemic cardiomyopathy

Although ischaemic heart disease is the most common cause of cardiomyopathy in the UK, our patient is young with no apparent vascular risk factors. In this context ischaemic cardiomyopathy would be uncommon.

20979

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Next Question

Previous Question	Tag Question
Feedback	End Session

Difficulty: Average

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Session Progress

Responses Correct:	0
Responses Incorrect:	90
Responses Total:	90
Responses - % Correct:	0%

Back to Filters

Question 105 of 199

A 38-year-old HIV-positive patient presents to the clinic complaining of increasing shortness of breath, dry cough and wheezing. On examination you can hear a left-sided monophonic wheeze. He has cutaneous Kaposi’s and is a lifelong non-smoker.

Investigations:

Hb	10.3 g/dl
WCC	$5.6 \times 10^9/l$
PLT	$130 \times 10^9/l$
CD4	92 cells/mm ³
Na ⁺	140 mmol/l
K ⁺	5.0 mmol/l
Creatinine	120 μmol/l
Chest X-ray	Limited left lower zone collapse

Which of the following is the most likely diagnosis?

- A

Bronchial carcinoma
- B

Bronchial carcinoid
- C

Endobronchial Kaposi’s sarcoma
- D

Bacterial pneumonia
- E

Tuberculosis

20980

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Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 105 of 199

A 38-year-old HIV-positive patient presents to the clinic complaining of increasing shortness of breath, dry cough and wheezing. On examination you can hear a left-sided monophonic wheeze. He has cutaneous Kaposi's and is a lifelong non-smoker.

Investigations:

Hb	10.3 g/dl
WCC	$5.6 \times 10^9/l$
PLT	$130 \times 10^9/l$
CD4	92 cells/mm ³
Na ⁺	140 mmol/l
K ⁺	5.0 mmol/l
Creatinine	120 μmol/l
Chest X-ray	Limited left lower zone collapse

Which of the following is the most likely diagnosis?

- A

Bronchial carcinoma
- B

Bronchial carcinoid
- C

Endobronchial Kaposi's sarcoma
- D

Bacterial pneumonia
- E

Tuberculosis

Explanation



C

Endobronchial Kaposi's sarcoma

Pulmonary Kaposi's sarcoma is found in between 6% and 30% of patients with HIV, and is the most common tumour seen. In patients who have cutaneous Kaposi's, up to 75% have demonstrable pulmonary tumours on endobronchial biopsy. Unfortunately use of HAART does not significantly appear to affect the prognosis in patients with pulmonary Kaposi's, with a mean prognosis of only 1.6 years from the point of diagnosis.

A

Bronchial carcinoma

Bronchial carcinoma would be on the differential diagnosis for a patient presenting with these symptoms and lobar collapse. However we are told he is a non-smoker and in the context of his profound immunosuppression and cutaneous Kaposi's, an alternative diagnosis is more probable.

B

Bronchial carcinoid

Carcinoid is a paraneoplastic syndrome characterised by facial flushing, diarrhoea and bronchial constriction. Pulmonary carcinoid syndrome occurs when the primary neuroendocrine tumour occurs in the lung. In our patient with profound immunosuppression and cutaneous Kaposi's, an alternative diagnosis is more likely.

D

Bacterial pneumonia

Bacterial pneumonia typically presents with a history of fevers and a productive cough. Blood tests would classically show a neutrophilia. However in practice it may be difficult to exclude infection in this case and further imaging and possible bronchoscopy would be indicated.

E

Tuberculosis

Pulmonary tuberculosis most commonly causes upper-lobe consolidation and cavitation. Presentation would be with fever, a productive cough and weight loss. However clinically it may be difficult to exclude tuberculosis in this case and further investigation such as a bronchoscopy would be indicated.

20980

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Next Question

Previous Question

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Feedback

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Difficulty: Average

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	91
Responses Total:	91
Responses - % Correct:	0%

Question 106 of 199

Investigations:

He tells you he has been with the same partner for the past 65 years.

11

Submit

Skip Question

Back to Filters

Question 106 of 199

An 85-year-old Jamaican man who is visiting his son is admitted to the Emergency room with a left pneumonia. He has a number of large, painless subcutaneous nodules which he says have been developing over a number of years; these are particularly marked over his shins. Some of these have ulcerated but have a well defined edge with granulation tissue and yellowish slough. There is hyperkeratosis of the soles of the feet and the palms of the hands.

Investigations:

Hb	10.5 g/dl
WCC	9.2 × 10 ⁹ /l
PLT	150 × 10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	4.9 mmol/l
Creatinine	141 μmol/l
VDRL	+
TPHA	+
FTA-ABS	+

He tells you he has been with the same partner for the past 65 years.

Which of the following represents the most likely diagnosis of his skin lesions?

- A

HIV
- B

Pinta
- C

Sarcoidosis
- D

Tertiary syphilis
- E

Yaws

Explanation ⚙

- E

Yaws

Yaws is caused by *Treponema pertenue*, a non-venereal treponemal disease which, similar to syphilis, may persist for many years. Serological testing is indistinguishable from that seen for syphilis, and differentiation is made on history and clinical features. Presentation is with one or multiple skin lesions which may ulcerate. Transmission is via skin-to-skin contact. Like syphilis, penicillin remains the drug of choice for treatment of yaws, with erythromycin, tetracycline or doxycycline being possible alternatives. Patients with yaws, particularly where the infection is chronic, may require re-treatment every few years. Pinta is caused by *Treponema carateum* and is characterised mainly by chronic pigmentary skin lesions which occur predominantly in a young adult population.

- A

HIV

The skin lesions described would not be typical of HIV or associated complications.

- B

Pinta

Pinta is one of the endemic treponeal diseases. It is endemic to central and south America. Presentation is with flat hyperkeratotic skin lesions with lymphadenopathy which resolve over time. Pinta is serologically indistinguishable from syphilis hence the positive result. In this case epidemiology makes an alternative diagnosis more likely.

- C

Sarcoidosis

Sarcoidosis is a multisystem, inflammatory condition, characterised by non-caseating granuloma formation. Typical presentation (Lofgren syndrome) is with bilateral hilar adenopathy, arthritis and erythema nodosum.

- D

Tertiary syphilis

Tertial syphilis occurs approximately 10–15 years after initial infection. Presentation is can be divided in to three forms: gummatous syphilis, neurosyphilis and cardiovascular syphilis. Gummatous syphilis is characterised by rubbery subcutaneous growths. The presentation descried does not fit with tertiary syphilis and the positive syphilis serology can be explained by endemic treponematoses.

20990

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Next Question

- Previous Question

Tag Question
- Feedback

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Responses Correct:	0
Responses Incorrect:	92
Responses Total:	92
Responses - % Correct:	0%

Back to Filters

Question 107 of 199

A 32-year-old man who suffered a motorbike accident 4 years ago is admitted from the airport after a trip to Asia. He is in shock on admission to the Emergency Room, you understand from the paramedics that he appears to have been travelling alone. They found a stock of penicillin V tablets in his bag, which imply that he has kept up with post-splenectomy antibiotic prophylaxis. He also has documentation to suggest he is up to date with his vaccinations. He has no history of foreign travel prior to this trip. On examination he is hypotensive at 85/50 mmHg, pulse 110 bpm, with areas of bruising and petechial haemorrhage. He is pyrexial at 38.8°C.

Investigations:

Hb	9.5 g/dl, Howell Jolly bodies seen on smear
WCC	12.5 × 10 ⁹ /l
PLT	40 × 10 ⁹ /l
Haptoglobins	Decreased
Na ⁺	136 mmol/l
K ⁺	4.4 mmol/l
Creatinine	180 μmol/l
Glucose	4.8 mmol/l
Alanine aminotransferase (ALT)	35 U/l
Urine specimen	haematuria +++

Which of the following is the most likely diagnosis?

- A

Falciparum malaria
- B

Meningococcus
- C

Pneumococcus
- D

Haemophilus influenzae
- E

Dengue Fever

20991

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Previous Question

Skip Question

Calculator

Normal Values

Question 107 of 199

3

-

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End session

Responses Total:	93
Responses - % Correct:	0%

Question 108 of 199

Investigations:

Hb	11.4 g/dl
WCC	5.4 x10 ⁹ /l
PLT	156 x10 ⁹ /l
Na ⁺	138 mmol/l
K ⁺	4.3 mmol/l
Creatinine	140 μmol/l
CD4 count	235 cells/mm ³
CXR	Evidence of left ventricular failure
Echocardiography	severe dilated cardiomyopathy
Ejection fraction	24%

3

- | | |
|---|-----------------|
| A | Cytomegalovirus |
| B | Toxoplasmosis |
| C | Influenza |
| D | Zidovudine |
| E | Ritonavir |

Submit

[Previous Question](#)

Skip Question

Calculator

Normal Values

Question 108 of 199

Investigations;

Hb	11.4 g/dl
WCC	5.4 x10 ⁹ /l
PLT	156 x10 ⁹ /l
Na ⁺	138 mmol/l
K ⁺	4.3 mmol/l
Creatinine	140 μ mol/l
CD4 count	235 cells/mm ³
CXR	Evidence of left ventricular failure
Echocardiography	severe dilated cardiomyopathy
Ejection fraction	24%

What is the most likely cause of his problem?

- | | |
|---|-----------------|
| A | Cytomegalovirus |
| B | Toxoplasmosis |
| C | Influenza |
| D | Zidovudine |
| E | Ritonavir |

Zidovudine has significant mitochondrial toxicity and is known to be associated with dilated cardiomyopathy. In patients like this myocardial biopsy usually reveals mitochondria stuffed with myelin, a sign of mitochondrial dysfunction. Withdrawal of zidovudine and substitution with an agent associated with less mitochondrial toxicity coupled with appropriate treatment for heart failure with diuretics and ACE inhibition usually resolves the problem, although HIV itself is decreasingly recognised as a cause of cardiomyopathy.

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[Previous Question](#)

Tag Question

Feedback

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Responses Correct:	0
Responses Incorrect:	94
Responses Total:	94
Responses - % Correct:	0%

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Back to Filters

Question 109 of 199

A 32-year-old man who spent 3 months on a school building project in Nepal visits the clinic for review. He suffered intermittent bouts of diarrhoea while in the country, and now complains of intermittent sweats and pain in his right lower chest. On examination his temperature is 37.7°C, and he has hepatic tenderness.

Investigations;

Hb	10.2 g/dl
WCC	11.1 x10 ⁹ /l
PLT	145 x10 ⁹ /l
Na ⁺	142 mmol/l
K ⁺	4.9 mmol/l
Creatinine	130 μmol/l
Bilirubin	45 μmol/l
ALT	72 U/l
Alk phos	342 U/l

CT thorax and upper abdomen - possible right subphrenic abscess

You ask for an opinion from an interventional radiologist. Which of the following is the most appropriate initial medical treatment for him?

- A

Metronidazole
- B

Oxytetracycline
- C

Chloroquine
- D

Cefotaxime
- E

Quinine

21021

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 109 of 199

A 32-year-old man who spent 3 months on a school building project in Nepal visits the clinic for review. He suffered intermittent bouts of diarrhoea while in the country, and now complains of intermittent sweats and pain in his right lower chest. On examination his temperature is 37.7°C, and he has hepatic tenderness.

Investigations;

Hb	10.2 g/dl
WCC	11.1 x10 ⁹ /l
PLT	145 x10 ⁹ /l
Na ⁺	142 mmol/l
K ⁺	4.9 mmol/l
Creatinine	130 μmol/l
Bilirubin	45 μmol/l
ALT	72 U/l
Alk phos	342 U/l

CT thorax and upper abdomen - possible right subphrenic abscess

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- A

Metronidazole
- B

Oxytetracycline
- C

Chloroquine
- D

Cefotaxime
- E

Quinine

Explanation

The symptoms of initial diarrhoeal infection, followed by intermittent fevers and symptoms and signs of abscess formation fit with amoebic liver infection. Management is usually a combination of CT guided drainage of abscess fluid by an interventional radiologist, coupled with a course of metronidazole or tinidazole. Chloroquine can be considered for patients in whom metronidazole is unsuitable.

21021

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Next Question

Previous Question	Tag Question
Feedback	End Session

Difficulty: Average

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	95
Responses Total:	95
Responses - % Correct:	0%

Question 110 of 199

Investigations;

Hb	12.1 g/dl
WCC	9.2 x10 ⁹ /l
PLT	260 x10 ⁹ /l
Na ⁺	141 mmol/l
K ⁺	4.8 mmol/l
Creatinine	100 μmol/l
Stool sample	No cysts or ovae seen

-
-
-

- | | |
|---|-----------------|
| A | Ciprofloxacin |
| B | Oxytetracycline |
| C | Albendazole |
| D | Metronidazole |
| E | Artemesin |

Submit

[Previous Question](#)

Skip Question

Calculator

Normal Values

Question 110 of 199

Investigations;

Hb	12.1 g/dl
WCC	9.2 x10 ⁹ /l
PLT	260 x10 ⁹ /l
Na ⁺	141 mmol/l
K ⁺	4.8 mmol/l
Creatinine	100 µ mol/l
Stool sample	No cysts or ovae seen

Which of the following is the most appropriate therapy for her?

- | | |
|---|-----------------|
| A | Ciprofloxacin |
| B | Oxytetracycline |
| C | Albendazole |
| D | Metronidazole |
| E | Artemesin |

Explanation

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[Previous Question](#)

Tag Question

Feedback

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Difficulty: Average

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Session Progress

Responses Correct:	0
Responses Incorrect:	96
Responses Total:	96
Responses - % Correct:	0%

Back to Filters

Question 111 of 199

A 29-year-old woman who received a cadaveric renal transplant 2 years ago comes to the Emergency room complaining of watery diarrhea that began 3 days ago. She has just returned from a holiday to Tunisia. Medication includes immunosuppression and ramipril for control of blood pressure. On examination her temperature is 38.4°C, her BP is 120/68 mmHg with a 20 mmHg postural drop, her pulse is 92/min and regular. She looks dehydrated and has a soft, diffusely tender abdomen.

Investigations;

Hb	13.1 g/dl
WCC	10.2 x10 ⁹ /l
PLT	200 x10 ⁹ /l
Na ⁺	140 mmol/l
K ⁺	3.5 mmol/l
Creatinine	185 μmol/l (142 at last clinic visit)
Stool sample	oocysts identified



Which of the following is the most appropriate management?

- A

Supportive therapy with oral rehydration salts only
- B

Supportive therapy and oral Ciprofloxacin
- C

Supportive therapy and oral Loperamide
- D

Supportive therapy and oral Nitazoxanide
- E

Supportive therapy and oral Metronidazole

21181

Submit

Previous Question

Skip Question

Calculator

✔

Normal Values

✔

Question 111 of 199

Investigations;



A	Supportive therapy with oral rehydration salts only
B	Supportive therapy and oral Ciprofloxacin
C	Supportive therapy and oral Loperamide
D	Supportive therapy and oral Nitazoxanide
E	Supportive therapy and oral Metronidazole

This woman almost certainly has cryptosporidium acquired through the water supply at her Tunisian hotel. Given that she is significantly dehydrated as evidenced by her postural drop and elevated creatinine it is appropriate to treat her with anti-microbial therapy. Nitroxanide interferes with the ability of the parasites to generate energy by blocking the pyruvate ferredoxin oxidoreductase reaction. Supportive therapy with oral rehydration salts is of course also an essential part of therapy.

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Next Question

Previous Question

Tag Question

Feedback

End Session

End Session

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Session Progress

Responses Correct:	0
Responses Incorrect:	97
Responses Total:	97
Responses - % Correct:	0%

Back to Filters

Question 112 of 199

A 26-year-old who is taking oral prednisolone therapy comes to the Emergency room because he is worried as his brother has been admitted to the hospital with acute chicken pox infection and he has seen him 2 days earlier. He is certain that he has never suffered from chicken pox.

What is the most appropriate course of action?



- | | |
|---|---------------------------------|
| A | Check varicella antibody status |
| B | Start prophylactic acyclovir |
| C | Start prophylactic valciclovir |
| D | Observe for signs of infection |
| E | Give VZV immunoglobulin |

21200

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Question 112 of 199

A	Check varicella antibody status
B	Start prophylactic acyclovir
C	Start prophylactic valciclovir
D	Observe for signs of infection
E	Give VZV immunoglobulin

Explanation

Steroid use within 3 months of chicken pox exposure increases the risk of severe infection in patients who are non-immune. Guidance supports the use of VZV immunoglobulin within 3 days of exposure if possible and not later than 10 days after exposure. Given that IV immunoglobulin is however not without risk, antibody status should of course be assessed first. Confirmed chicken pox infection should be managed aggressively with anti-viral therapy and specialist opinion from an infectious disease consultant is advised. Complications of infection in this population include pneumonitis, hepatitis, encephalitis and DIC.

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Next Question

[Previous Question](#)

Tag Question

Feedback

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Session Progress

Responses Correct:	0
Responses Incorrect:	98
Responses Total:	98
Responses - % Correct:	0%

Back to Filters

Question 114 of 199

A 42-year-old man comes to the Emergency room with his male partner. He has had a headache for the past few days and now complains of worsening left arm weakness. His partner is also concerned that he is becoming increasingly confused. On examination he is pyrexial 37.8°C, his BP is 138/72 mmHg. There is 4/5 weakness of his left arm.

Investigations;

Hb	11.0 g/dl
WCC	4.4 x10 ⁹ /l
PLT	201 x10 ⁹ /l
Na ⁺	138 mmol/l
K ⁺	4.4 mmol/l
Creatinine	130 μmol/l
CSF	elevated protein, mononuclear leucocytosis, opening pressure 18cm H2O
MRI head	evidence of ventricular enlargement, possible developing right sided infarct

Which of the following is the most likely diagnosis?

- A

Toxoplasmosis
- B

CMV encephalitis
- C

Acute cerebral infarct
- D

Cerebral vasculitis
- E

Cryptococcal meningitis

21204

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 114 of 199

A 42-year-old man comes to the Emergency room with his male partner. He has had a headache for the past few days and now complains of worsening left arm weakness. His partner is also concerned that he is becoming increasingly confused. On examination he is pyrexial 37.8°C, his BP is 138/72 mmHg. There is 4/5 weakness of his left arm.

Investigations;

Hb	11.0 g/dl
WCC	4.4 x10 ⁹ /l
PLT	201 x10 ⁹ /l
Na ⁺	138 mmol/l
K ⁺	4.4 mmol/l
Creatinine	130 μmol/l
CSF	elevated protein, mononuclear leucocytosis, opening pressure 18cm H2O
MRI head	evidence of ventricular enlargement, possible developing right sided infarct

Which of the following is the most likely diagnosis?

- A

Toxoplasmosis
- B

CMV encephalitis
- C

Acute cerebral infarct
- D

Cerebral vasculitis
- E

Cryptococcal meningitis

Explanation

This man almost certainly has HIV and has developed a clinical picture consistent with CMV encephalitis. A mononuclear leukocytosis and raised CSF protein are typical. MRI findings are often non-specific, with evidence of ventricular enlargement, cerebral atrophy and as in this case a developing cerebral infarct. IV ganciclovir is the mainstay of therapy for CMV encephalitis, with long term prophylaxis post infection likely to be required. The diagnosis of HIV should also be confirmed, and he should start appropriate anti-retroviral therapy.

21204

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Next Question

Previous Question

Feedback

Tag Question

End Session

Difficulty: Average

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	99
Responses Total:	99
Responses - % Correct:	0%

Question 113 of 199

was
a

Hb	11.4 g/dl
WCC	13.3 x10 ⁹ /l
PLT	56 x10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	6.1 mmol/l
Creatinine	235 μmol/l
ALT	320 U/l
Bilirubin	290 μmol/l
CK	780 U/l

A	N-acetylcysteine
B	Erythromycin
C	Benzyllpenicillin
D	FFP
E	Ciprofloxacin

Submit

Skip Question

Back to Filters

Question 113 of 199

A 42-year-old farmer is brought to the Emergency room by his wife. She is very worried about him, as he has been unable to leave the house and get to work because of a fever and feeling completely washed out. He has been working particularly hard as they have some concerns about finance. They tell you that he was clearing some drainage ditches on the edge of one of his fields a few days ago. On examination he is pyrexial 38.2°C and looks jaundiced. There is a bandage on his right leg from where he cut himself on some brambles. He has abdominal tenderness, particularly over his liver

Investigations;

Hb	11.4 g/dl
WCC	13.3 x10 ⁹ /l
PLT	56 x10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	6.1 mmol/l
Creatinine	235 μmol/l
ALT	320 U/l
Bilirubin	290 μmol/l
CK	780 U/l



Which of the following is the most appropriate therapy for him?

- A

N-acetylcysteine
- B

Erythromycin
- C

Benzympenicillin
- D

FFP
- E

Ciprofloxacin

Explanation

This unfortunate man has the severe form of leptospirosis known as Weil’s disease, spread via rats’ urine. It is likely that the cut on his leg, and wading through his drainage ditches, provided the route for infection. Infection leads to thrombocytopenia, jaundice with only a modest rise in transaminases, renal failure and increased CK. Benzympenicillin or IV cephalosporins are drugs of choice for severe infection, with erythromycin or doxycycline possible alternatives in patients who are penicillin allergic. Thankfully most patients with leptospirosis suffer from a relatively mild infection and recover. Mortality from Weil’s disease is particularly high however in patients who are elderly or in those with pre-existing pathology.

21201

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Next Question

Previous Question

Feedback

Tag Question

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Difficulty: Average

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	100
Responses Total:	100
Responses - % Correct:	0%

Back to Filters

Question 115 of 199

A 38-year-old homosexual man presents with diarrhoea which also contains blood and pus. He admits to unprotected anal sex some 2-3 weeks earlier. On examination he is afebrile, there are no abnormal findings apart from tenderness on PR.

Investigations;

Hb	13.1 g/dl
WCC	8.9 x10 ⁹ /l
PLT	210 x10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	4.5 mmol/l
Creatinine	130 mol/l

Which of the following is the most important next step?

- A

Rectal biopsy
- B

Flexible colonoscopy
- C

NAAT swab
- D

Stool microscopy
- E

Trial of antibiotics

21240

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 115 of 199

Investigations;

Hb	13.1 g/dl
WCC	8.9 x10 ⁹ /l
PLT	210 x10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	4.5 mmol/l
Creatinine	130 mol/l

A	Rectal biopsy
B	Flexible colonoscopy
C	NAAT swab
D	Stool microscopy
E	Trial of antibiotics

The suspicion here is that this patient has developed rectal gonococcus infection due to his unprotected anal sex. Investigation of choice when collecting rectal specimens is a NAAT swab, (nucleic acid amplification testing), which is useful if gonococcus or chlamydia is suspected. Prior to treatment he should be screened for other sexually transmitted infections including HIV, and if he knows the partner with whom he had anal intercourse, that individual should also be screened.

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Next Question

Previous Question

Tag Question

Feedback

End Session

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Session Progress

Responses Correct:	0
Responses Incorrect:	101
Responses Total:	101
Responses - % Correct:	0%

Back to Filters

Question 116 of 199

A 28-year-old neutropenic patient with a tunneled intravenous line has been admitted for treatment of a fever of unknown origin. He is still febrile after 4 days of therapy initially with tazocin and gentamicin, which subsequently switched to meropenem and teicoplanin.

Which of the following would be the most appropriate next anti-infective agent?

- A Fimoxyclav
- B Ciprofloxacin
- C Amphotericin B
- D Azithromycin
- E Gentamicin

21241

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Previous Question Skip Question

Calculator 

Normal Values 

Question 116 of 199

Which of the following would be the most appropriate next anti-infective agent?

A	Fimoxyclav
B	Ciprofloxacin
C	Amphotericin B
D	Azithromycin
E	Gentamicin

Persistent pyrexia 3 days after commencing powerful broad spectrum antibiotics raises the possibility of fungal infection. Systemic candidiasis and aspergillosis may occur in this population. Amphotericin B carries risk of significant nephrotoxicity, therefore a liposomal form has been developed, which is associated with less renal dysfunction.

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Responses Correct:	0
Responses Incorrect:	102
Responses Total:	102
Responses - % Correct:	0%

Question 117 of 199

Investigations;



A	Ciprofloxacin
B	Doxycycline
C	Erythromycin
D	Chloramphenicol
E	Benzympenicillin

Submit

Skip Question

Back to Filters

Question 117 of 199

A 32-year-old man whose main hobby is fishing in local freshwater lakes comes to the Emergency room feeling extremely unwell. Over the past few days he has suffered from a flu-like illness but during the past 24hrs has deteriorated further with a cough productive of blood stained sputum, a severe headache, fevers and jaundice. On examination he is pyrexial 37.9°C. His BP is 100/60 mmHg, his pulse is 95/min regular. He has a non-specific skin rash and tenderness in the right upper quadrant on abdominal examination.

Investigations;

Hb	11.1 g/dl
WCC	13.2 x10 ⁹ /l
PLT	95 x10 ⁹ /l
Na ⁺	138 mmol/l
K ⁺	4.9 mmol/l
Creatinine	201 μmol/l
CK	980 U/l
ALT	152 U/l
Bili	280 μmol/l



Given the likeliest diagnosis, which of the following is the most appropriate antimicrobial therapy for him?

- A

Ciprofloxacin
- B

Doxycycline
- C

Erythromycin
- D

Chloramphenicol
- E

Benzympenicillin

Explanation

This man has symptoms consistent with severe leptospirosis, or Weil’s disease. It is likely he acquired it through exposure to rat’s urine associated with his fishing trips. Erythromycin and doxycycline may be considered in patients who are unsuitable for pencillin therapy or those with very mild symptoms of infection, but IV penicillin is the primary treatment for severe disease. The peak in incidence of cases of leptospirosis appears to be in the late summer/ early autumn in temperate climates, where it may be that moist, humid conditions allow the bacteria to persist for longer.

21242

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Responses Correct:	0
Responses Incorrect:	103
Responses Total:	103
Responses - % Correct:	0%

Back to Filters

Question 118 of 199

A 62-year-old man presented with a 2-week history of fever, shortness of breath and a cough with haemoptysis. He had returned from Mississippi 3 weeks previously, where he was studying bats. He had no other medical conditions. On examination his temperature was 37.6°C, and oxygen saturation was 97% on room air. He appeared well and comfortable at rest. There was bilateral wheeze on auscultation of the chest.

Investigations:

Hb	11.2 g/dl
WCC	9.1 x10 ⁹ /l
PLT	120 x10 ⁹ /l
Na ⁺	140 mmol/l
K ⁺	4.9 mmol/l
Creatinine	130 μmol/l
CXR	Hilar lymphadenopathy
ESR	35 mm/1 st h (<20)
Sputum culture	Yeast forms

What is the most appropriate treatment?

- A

Itraconazole
- B

Amphotericin
- C

Doxycycline
- D

Ganciclovir
- E

Prednisolone

21282

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 118 of 199

WCC	9.1 x10 ⁹ /l
PLT	120 x10 ⁹ /l
Na ⁺	140 mmol/l
K ⁺	4.9 mmol/l
Creatinine	130 μmol/l
CXR	Hilar lymphadenopathy
ESR	35 mm/1 st h (<20)
Sputum culture	Yeast forms

- | | |
|---|--------------|
| A | Itraconazole |
| B | Amphotericin |
| C | Doxycycline |
| D | Ganciclovir |
| E | Prednisolone |

- | | |
|---|--------------|
| A | Itraconazole |
|---|--------------|
- This patient has symptoms, signs and investigations consistent with

B	Amphotericin
---	--------------

This patient has symptoms, signs and investigations consistent with

- histoplasmosis, a yeast infection that is endemic in Mississippi, Ohio and Missouri. It occurs particularly in areas that house large bat and bird populations. In severe disease, amphotericin would be the correct treatment, but here in relatively mild disease, a prolonged course of itraconazole would be more appropriate.

D	Ganciclovir
---	-------------

- fluconazole is an antifungal therapy, which would not be appropriate for the treatment of this patient's yeast infection. This patient has a presentation and investigations consistent with histoplasmosis, an infection which is endemic to areas with large bat and bird populations, such as Mississippi. This case is relatively mild and therefore the most appropriate treatment would be a prolonged course of itraconazole.

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Next Question

[Previous Question](#)

Tag Question

Feedback

End Session

Difficulty: Average

Responses Incorrect:	104
Responses Total:	104
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Question 119 of 199

Investigations:

- 21431

Submit

[Previous Question](#)
[Skip Question](#)

Skip Question

Question 119 of 199

Hb	
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Next Question

Feedback

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Session Progress	
Responses Correct:	0

Responses Correct:	0
Responses Incorrect:	125

Question 120 of 199

Investigations:

References

References

Submit

Skip Question

Back to Filters

Question 120 of 199

A 50-year-old woman presented with severe vomiting, non-bloody diarrhoea and abdominal cramps. These began 6 hours after eating a meat pie which she had bought the day before and left out on the counter in her kitchen. On examination her blood pressure was 110/70 mmHg, pulse was 92 beats/min and she appeared dehydrated.

Investigations:

Hb	13.3 g/dl (11.5–16.5)
WCC	11.0 × 10 ⁹ /l (4.0–11.0)
PLT	299 × 10 ⁹ /l (150–400)
Na ⁺	141 mmol/l (137–144)
K ⁺	3.7 mmol/l (3.5–4.9)
Creatinine	172 μmol/l (60–110)

Which is the most likely causative organism?

- A

Bacillus cereus
- B

Bacteroides fragilis
- C

Staphylococcus aureus
- D

Campylobacter jejuni
- E

Escherichia coli

Explanation



- C

Staphylococcus aureus

The speed at which this patient developed symptoms following ingestion of the meat pie suggests an organism that produces an enterotoxin. Of the organisms above, only *Bacillus cereus* and *S. aureus* produce enterotoxins; *Bacillus cereus* is associated with stored cooked rice, which this patient has not eaten. *S. aureus*, however, is associated with poorly stored high-salt foods, such as the meat pie that this patient had left at room temperature. *S. aureus* typically causes a severe but self-limiting watery diarrhoea, resolving within 48 h. No specific treatment is required; simple advice regarding adequate fluid and electrolyte replacement with oral rehydration salts is sufficient.

- A

Bacillus cereus

Although *Bacillus cereus* does cause a severe watery diarrhoea, food poisoning from this organism occurs after eating cooked rice that has been stored; this is not consistent with the patient’s food history. The more likely causative organism here is *S. aureus*. This patient’s history is consistent with gastroenteritis caused by an organism producing an enterotoxin, such as *S. aureus*. *S. aureus* food poisoning is typically caused by foods with a high salt content that have been improperly left at room temperature, such as a meat pie. It causes a severe diarrhoea that is typically self-resolving within 48 h.

- B

Bacteroides fragilis

Bacteroides fragilis is a normal gut commensal and not pathogenic unless it is found in the bloodstream or other tissues. It does not cause an infectious gastroenteritis. This patient has a history and symptoms consistent with *S. aureus* food poisoning; the profuse watery diarrhoea suggests a bacterium producing an enterotoxin, and *S. aureus* is associated with improperly stored high-salt foods (such as a meat pie). It typically resolves within 48 h and does not require any specific treatment.

- D

Campylobacter jejuni

Campylobacter is the most common cause of infectious gastroenteritis in the UK; however, it typically causes a bloody, rather than watery, diarrhoea. It is a gut commensal in poultry and therefore contaminates most raw chicken; commonly food poisoning with *Campylobacter* occurs through eating undercooked poultry. It can also be contracted from drinking unpasteurised milk. This patient developed a severe watery diarrhoea within 12 h of eating, suggesting an enterotoxin such as that produced by *S. aureus*. Improperly stored salty foods (such as a meat pie) are a typical source of *S. aureus* food poisoning.

- E

Escherichia coli

Escherichia coli is the most common cause of traveller’s diarrhoea and can cause food poisoning, typically through eating contaminated beef or drinking unpasteurised milk. However, the incubation period is usually at least 24 h – this patient’s symptoms developed 6 h after eating the meat pie, suggesting infection with an enterotoxin-producing bacterium such as *B. cereus* or *S. aureus*. *B. cereus* is found in rice, which this patient has not eaten, whereas *S. aureus* is associated with high-salt foods such as the meat pie that this patient had left at room temperature. Consequently in this case *S. aureus* is the most likely causative organism.

21432

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Back to Filters

Question 121 of 199

A 25-year-old woman presented with fever 1 week after returning from India. Her fevers followed a specific pattern, rising over the course of the day and then dropping by the next morning. She also had non-specific abdominal pain, malaise and a dry cough. She had noticed a rash on her trunk. On examination, her temperature was 38.1°C and she appeared dehydrated. She had diffuse abdominal tenderness and a pink maculopapular rash over her trunk.

Investigations:

Hb	11.9 g/dl (11.5–16.0)
WCC	11.1 × 10 ⁹ /l (4.0–11.0)
PLT	201 × 10 ⁹ /l (150–400)
Na ⁺	136 mmol/l (137–144)
K ⁺	4.4 mmol/l (3.5–4.9)
Creatinine	130 mol/l (60–110)
Stool culture	Isolates of <i>Salmonella paratyphi</i>

The patient is keen not to be admitted to hospital.

Which of the following is the most appropriate treatment?

- A

Ciprofloxacin
- B

Doxycycline
- C

Erythromycin
- D

Azithromycin
- E

Flucloxacillin

21433

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 121 of 199

A 25-year-old woman presented with fever 1 week after returning from India. Her fevers followed a specific pattern, rising over the course of the day and then dropping by the next morning. She also had non-specific abdominal pain, malaise and a dry cough. She had noticed a rash on her trunk. On examination, her temperature was 38.1°C and she appeared dehydrated. She had diffuse abdominal tenderness and a pink maculopapular rash over her trunk.

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Hb	11.9 g/dl (11.5–16.0)
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The patient is keen not to be admitted to hospital.

Which of the following is the most appropriate treatment?

- A

Ciprofloxacin
- B

Doxycycline
- C

Erythromycin
- D

Azithromycin
- E

Flucloxacillin

Explanation



- D

Azithromycin

This patient has typhoid fever, which can be caused by *Salmonella typhi* or *Salmonella paratyphi* subtypes. Her presentation with high intermittent fever, dry cough, malaise and abdominal pain is typical. Patients classically have constipation rather than diarrhoea. Typhoid fever can be treated with fluoroquinolones; however, given that this patient has contracted typhoid fever after travelling to India, there is a high chance that the organism is fluoroquinolone resistant, and azithromycin would be a safer choice of treatment.

- A

Ciprofloxacin

This patient has symptoms, signs and investigations consistent with typhoid fever: the high intermittent fever, dry cough, lack of diarrhoea and non-specific abdominal pain, and stool culture has confirmed the presence of *S. paratyphi*. Typhoid fever can be treated with fluoroquinolones such as ciprofloxacin; however, there is widespread resistance amongst typhoid organisms to fluoroquinolones, especially in India. Consequently, azithromycin would be a safer choice of treatment for this patient.

- B

Doxycycline

This patient has typhoid fever, caused by *S. paratyphi* and indicated by her intermittent high fevers, dry cough, lack of diarrhoea and non-specific abdominal pain, in combination with the findings on stool culture. Although doxycycline provides some coverage of *Salmonella*, there is widespread resistance amongst *typhi* and *paratyphi* species. A better and safer choice of antibiotic in this case would be azithromycin.

- C

Erythromycin

This patient has typhoid fever – hence the intermittent high fever, dry cough, lack of diarrhoea and non-specific abdominal pain – confirmed by the finding of *S. paratyphi* in the stool culture. *Salmonella paratyphi* is a Gram-negative rod: erythromycin has poor Gram-negative coverage and is used for Gram-positive infections. Consequently it would be a poor choice of antibiotic to treat this patient: a better choice would be azithromycin. Ciprofloxacin can also be used to treat typhoid fever, but resistance to fluoroquinolones is rife, especially in India, and therefore azithromycin is the best choice in this case.

- E

Flucloxacillin

This patient’s intermittent high fever, dry cough, lack of diarrhoea and diffuse abdominal pain is consistent with typhoid fever, given her travel history. This is confirmed with the finding of *S. paratyphi* in her stool. *Salmonella paratyphi* is a Gram-negative rod: flucloxacillin is typically used for Gram-positive infections and has poor activity against *Salmonella*. Ciprofloxacin or azithromycin would be better choices of antibiotic for this patient. Due to the prevalence of fluoroquinolone resistance, especially in India, azithromycin would be the best choice in this case.

21433

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Next Question

- Previous Question

Tag Question
- Feedback

End Session

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Session Progress

Responses Correct:	0
Responses Incorrect:	107
Responses Total:	107
Responses - % Correct:	0%

Back to Filters

Question 122 of 199

A 28-year-old man presented with a 2-month history of swelling and pain affecting his lower limbs, worse on the right than on the left. He also felt generally unwell and had had intermittent fevers. He had returned from Sri Lanka 2 days previously, where he had been working as an aid worker in rural areas surrounded by paddy fields. On examination both legs were swollen with non-pitting oedema to the knee, unchanged by elevation of the legs. There was painful bilateral inguinal lymphadenopathy.

Investigations:

Hb	12.1 g/dl (13.0–18.0)
WCC	$8.9 \times 10^9/l$ (4.0–11.0)
Eosinophils	$1.2 \times 10^9/l$ (0.04–0.4)
CXR	Bilateral pulmonary infiltrates
Ultrasound of the groin	Bilateral inguinal lymphadenopathy with lymphatic obstruction

What is the most appropriate treatment for this patient’s condition?



- A

Ivermectin
- B

Chloroquine
- C

Ciprofloxacin
- D

Itraconazole
- E

Metronidazole

21440

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Previous QuestionSkip Question

Calculator✔

Normal Values✔

Back to Filters

Question 122 of 199

A 28-year-old man presented with a 2-month history of swelling and pain affecting his lower limbs, worse on the right than on the left. He also felt generally unwell and had had intermittent fevers. He had returned from Sri Lanka 2 days previously, where he had been working as an aid worker in rural areas surrounded by paddy fields. On examination both legs were swollen with non-pitting oedema to the knee, unchanged by elevation of the legs. There was painful bilateral inguinal lymphadenopathy.

Investigations:

Hb	12.1 g/dl (13.0–18.0)
WCC	$8.9 \times 10^9/l$ (4.0–11.0)
Eosinophils	$1.2 \times 10^9/l$ (0.04–0.4)
CXR	Bilateral pulmonary infiltrates
Ultrasound of the groin	Bilateral inguinal lymphadenopathy with lymphatic obstruction

What is the most appropriate treatment for this patient’s condition?

≡

- A

Ivermectin
- B

Chloroquine
- C

Ciprofloxacin
- D

Itraconazole
- E

Metronidazole

Explanation

⚙

- A

Ivermectin

This patient has filariasis. He has travelled to an endemic area, surrounded by paddy fields which provide the perfect breeding ground for the parasitic vector (mosquitoes). The parasitic worms block the lymphatics, leading to limb swelling and lymphadenopathy. Filariasis also explains his general malaise and intermittent fevers, and the marked eosinophilia and bilateral pulmonary infiltrates. First-line treatment is with diethylcarbamazine (DEC), but if there is any suggestion of a high parasitic load or concomitant onchocerciasis, ivermectin is an appropriate second-line treatment.

- B

Chloroquine

This patient has filariasis: this is infection with microscopic worms, causing blockage of lymphatics and hence lymphadenopathy and limb swelling. It is contracted through bites from mosquitoes carrying the parasite. This patient has been working near paddy fields: these watery environments provide perfect breeding grounds for mosquitoes. Filariasis would explain his limb swelling and painful lymphadenopathy; the nematodes can also migrate to the lungs causing bilateral pulmonary infiltrates. Finally this patient has a significant eosinophilia – an eosinophilia of this level is most likely to be caused by a significant parasitic infection. Filariasis can be treated with diethylcarbamazine (DEC), albendazole or ivermectin. Ivermectin is the most appropriate choice if there is any risk of concomitant onchocerciasis. Chloroquine would not be appropriate as it is an antimalarial agent; this patient’s symptoms and signs are not consistent with malaria.

- C

Ciprofloxacin

This patient’s leg swelling, intermittent fevers, bilateral pulmonary infiltrates and significant eosinophilia would be best explained by filariasis. This is a parasitic worm infection contracted after being bitten by an infected mosquito; rural paddy fields are typical breeding grounds for mosquitos. The filarial nematodes cause blockage of lymphatics, leading to lymphadenopathy and limb swelling. Ciprofloxacin is an antibiotic and will not treat this patient’s parasitic infection. Diethylcarbamazine (DEC) is first line but should not be used if there is suggestion of a high filarial load or concomitant onchocerciasis. The most appropriate treatment for this patient would be ivermectin.

- D

Itraconazole

This patient has filariasis: this explains his intermittent fevers, leg swelling, painful lymphadenopathy and the findings on chest X-ray and ultrasound. The marked eosinophilia is highly suggestive of a parasitic infection. Filariasis is caused by tiny parasitic worms which are contracted through vector transmission, by infected mosquitoes; paddy fields provide perfect breeding grounds for mosquitoes. The nematodes block the lymphatics, which leads to limb swelling and lymphadenopathy. Itraconazole is an antifungal medication, and therefore would not be appropriate to treat this patient. Diethylcarbamazine (DEC) would be first line, but should not be used if there is any suggestion of high parasite load or concomitant onchocerciasis. The most appropriate treatment for this patient would be ivermectin.

- E

Metronidazole

The intermittent fevers, malaise, limb swelling, lymphadenopathy and marked eosinophilia, against the background of this patient’s travel history, suggest filariasis. This is a parasitic worm transmitted through mosquitoes (for which rural paddy fields provide the perfect breeding ground). The worms block the lymphatics, leading to limb swelling and lymphadenopathy. They can also cause bilateral pulmonary infiltrates. As metronidazole is an antibiotic, it is not effective against a parasite such as filarial worms. Diethylcarbamazine (DEC) is first-line treatment, but should not be used if there is suggestion of a high parasite load or concomitant onchocerciasis: the second-line option of ivermectin would be most appropriate in this case.

21440

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Session Progress

Responses Correct:	0
Responses Incorrect:	108
Responses Total:	108
Responses - % Correct:	0%

Back to Filters

Question 123 of 199

A 72-year-old woman presented with a 5-day history of profuse diarrhoea. She passed watery stool flecked with blood up to 10 times per day. She also complained of cramping abdominal pain, a low-grade fever and increased lethargy. She had recently completed a course of clindamycin for a dental abscess. On examination her temperature was 37.8°C. Her abdomen was soft but the lower portion was generally tender.

Investigations:

Hb	12.1 g/dl (11.5–16.5)
WCC	18.3 × 10 ⁹ /l (4.0–11.0)
Urea	13.4 mmol/l (2.5–7.0)
Na ⁺	142 mmol/l (137–144)
K ⁺	4.9 mmol/l (3.5–4.9)
Creatinine	165 mol/l (60–110)
Rigid sigmoidoscopy	Raised, yellowish white plaques throughout sigmoid

Given the likely diagnosis, which of the following is the most appropriate treatment?

- A

Intravenous ciprofloxacin
- B

Intravenous vancomycin
- C

Oral ciprofloxacin
- D

Oral vancomycin
- E

Rectal budesonide

21441

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 123 of 199

A 72-year-old woman presented with a 5-day history of profuse diarrhoea. She passed watery stool flecked with blood up to 10 times per day. She also complained of cramping abdominal pain, a low-grade fever and increased lethargy. She had recently completed a course of clindamycin for a dental abscess. On examination her temperature was 37.8°C. Her abdomen was soft but the lower portion was generally tender.

Investigations:

Hb	12.1 g/dl (11.5–16.5)
WCC	18.3 × 10 ⁹ /l (4.0–11.0)
Urea	13.4 mmol/l (2.5–7.0)
Na ⁺	142 mmol/l (137–144)
K ⁺	4.9 mmol/l (3.5–4.9)
Creatinine	165 μmol/l (60–110)
Rigid sigmoidoscopy	Raised, yellowish white plaques throughout sigmoid

Given the likely diagnosis, which of the following is the most appropriate treatment?

≡

- A

Intravenous ciprofloxacin
- B

Intravenous vancomycin
- C

Oral ciprofloxacin
- D

Oral vancomycin
- E

Rectal budesonide

Explanation

⚙

- D

Oral vancomycin

This patient has *Clostridium difficile* infection, as evidenced by her profuse, offensive diarrhoea, pseudomembranous colitis on rigid sigmoidoscopy and high white cell count. This was probably caused by taking clindamycin, which increases the risk of *C. difficile* infection. Oral vancomycin is the first-line treatment for *C. difficile*; other options include oral metronidazole and oral fidaxomicin.

- A

Intravenous ciprofloxacin

This patient has developed pseudomembranous colitis on sigmoidoscopy, and her symptoms and high white cell count are consistent with *C. difficile* infection. Clindamycin, which this patient had received for a dental infection, is known to be associated with *C. difficile* infection. Unfortunately ciprofloxacin is also associated with the development of *C. difficile* infection, and therefore would not be an appropriate choice of treatment. Also, please note that bioavailability for intravenous and oral ciprofloxacin is virtually identical, therefore treating with intravenous ciprofloxacin provides no advantage unless the patient is unable to take oral ciprofloxacin. First-line treatment of *C. difficile* is usually oral vancomycin or oral metronidazole, but sometimes oral fidaxomicin is used.

- B

Intravenous vancomycin

This patient has *Clostridium difficile* infection, as evidenced by the profuse diarrhoea, pseudomembranous colitis on sigmoidoscopy and high white cell count. Clindamycin, which this patient has recently taken, is known to be associated with *C. difficile* infection. Whilst vancomycin is an appropriate choice of antibiotic, it should be given orally, not intravenously, otherwise it will not reach sufficient therapeutic levels in the gut. Other antibiotic options include metronidazole and fidaxomicin.

- C

Oral ciprofloxacin

This patient’s profuse diarrhoea, pseudomembranous colitis on rigid sigmoidoscopy and high white cell count point towards *Clostridium difficile* infection, probably precipitated by the clindamycin she was prescribed for her dental infection. Both clindamycin and ciprofloxacin are strongly associated with increased risk of *C. difficile* infection; consequently ciprofloxacin would not be a good choice of antibiotic for treatment of this patient. First-line treatments would be oral vancomycin or oral metronidazole; second-line therapies include oral fidaxomicin.

- E

Rectal budesonide

Budesonide is a steroid, and rectal budesonide is used in the treatment of inflammatory bowel disease and gut graft-versus-host disease in order to tackle inflammation. However, this patient has *Clostridium difficile* infection, as evidence by her profuse, offensive diarrhoea and high white cell count after taking a course of clindamycin, an antibiotic known to be associated with *C. difficile*. The rigid sigmoidoscopy confirms a pseudomembranous colitis. Treating this with steroids would be highly inappropriate; she requires antibiotic therapy with oral vancomycin. Other appropriate options would be oral metronidazole or fidaxomicin.

21441

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	109
Responses Total:	109
Responses - % Correct:	0%

Question 124 of 199



Hb	11.9 g/dl (13.0–18.0)
WCC	$5.1 \times 10^9/\text{l}$ (4.0–11.0)
Lymphocytes	$0.9 \times 10^9/\text{l}$ (1.5–4.0)

A	HHV-6 testing
B	HIV testing
C	HPV testing
D	Lymph node biopsy
E	Skin prick allergy testing

Submit

Skip Question

Back to Filters

Question 124 of 199

A 33-year-old man presented with a 3-month history of skin lesions. The lesions had increased in number and size over preceding months. He did not have any medical conditions or take any medications. On examination he had a number of purple-red scaly patches, predominantly on both lower limbs. He also had oral candidiasis and widespread low-volume lymphadenopathy.

Investigations:

Hb	11.9 g/dl (13.0–18.0)
WCC	5.1 × 10 ⁹ /l (4.0–11.0)
Lymphocytes	0.9 × 10 ⁹ /l (1.5–4.0)

What is the most appropriate initial investigation?

- A

HHV-6 testing
- B

HIV testing
- C

HPV testing
- D

Lymph node biopsy
- E

Skin prick allergy testing

Explanation



- B

HIV testing

This rash is consistent with Kaposi’s sarcoma, an AIDS-defining illness: in the context of oral candidiasis (in the absence of a background of inhaled steroids or other immunosuppression), lymphopenia and widespread lymphadenopathy, this is highly suggestive of undiagnosed HIV infection. The patient should be appropriately counselled to prepare him for the probability of a positive result.

- A

HHV-6 testing

Human herpes virus 6 causes roseola infantum, and can also reactivate in the immunosuppressed or transplant recipient, causing bone marrow suppression or pneumonitis. This patient has a lymphopenia, widespread lymphadenopathy and oral candidiasis without any background of inhaled steroids or other immunosuppression. In the context of his rash, which would be consistent with Kaposi’s sarcoma, this patient is likely to have undiagnosed HIV infection, not HHV-6, and so he should be tested for HIV positivity. Human herpes virus 8 (HHV-8) is the herpesvirus associated with Kaposi’s sarcoma.

- C

HPV testing

Human papilloma virus causes warts, and is associated with various malignancies including cervical carcinoma. This patient has a rash consistent with Kaposi’s sarcoma, which is not associated with HPV infection. Kaposi’s sarcoma is an AIDS-defining illness, and this patient should be tested for HIV, especially given that he has widespread lymphadenopathy, a lymphopenia and oral candidiasis without any history of inhaled steroids or other immunosuppression.

- D

Lymph node biopsy

This patient has Kaposi’s sarcoma, and combined with his oral candidiasis without a background of inhaled steroids, this is strongly suggestive of underlying immunosuppression, particularly of HIV. HIV would explain his lymphadenopathy and lymphopenia, and hence the most appropriate next investigation would be an HIV test.

- E

Skin prick allergy testing

This patient’s rash is not consistent with allergy; the description is suggestive of Kaposi’s sarcoma. He has no history of allergy symptoms (itch, wheeze, swelling), but instead has oral candidiasis which cannot be explained by inhaled steroids or other immunosuppression. When combined with his widespread lymphadenopathy and lymphopenia, this patient’s presentation is highly suggestive of undiagnosed HIV, and he should be HIV tested.

21442

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- Previous Question

Feedback
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Session Progress

Responses Correct:	0
Responses Incorrect:	110
Responses Total:	110
Responses - % Correct:	0%

Back to Filters

Question 125 of 199

A 21-year-old student presented with a 2-day history of progressive severe retro-orbital headache, myalgia, nausea and vomiting. She had returned from Northern Queensland 1 day previously. On examination her temperature was 39.5°C, and blood pressure was 125/70 mmHg lying and 105/65 mmHg standing. She appeared dehydrated and had a petechial rash over her trunk and limbs.

Investigations:

Hb	14.9 g/dl (11.5–16.0)
WCC	4.1 × 10 ⁹ /l (4.0–11.0)
PLT	95 × 10 ⁹ /l (150–400)
Na ⁺	141 mmol/l (137–144)
K ⁺	4.9 mmol/l (3.5–4.9
Urea	15.0 mmol/l (2.5–7.0)
Creatinine	187 mol/l (60–110)
ALT	280 U/l (5–35)
Blood film (thick & thin)	Negative for malarial parasites

What is the most appropriate treatment?

- A

Aciclovir
- B

Benzympenicillin
- C

Paracetamol and rehydration
- D

Ceftriaxone
- E

Ibuprofen

21444

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Previous QuestionSkip Question

Calculator

Normal Values

Back to Filters

Question 125 of 199

A 21-year-old student presented with a 2-day history of progressive severe retro-orbital headache, myalgia, nausea and vomiting. She had returned from Northern Queensland 1 day previously. On examination her temperature was 39.5°C, and blood pressure was 125/70 mmHg lying and 105/65 mmHg standing. She appeared dehydrated and had a petechial rash over her trunk and limbs.

Investigations:

Hb	14.9 g/dl (11.5–16.0)
WCC	4.1 × 10 ⁹ /l (4.0–11.0)
PLT	95 × 10 ⁹ /l (150–400)
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Creatinine	187 μmol/l (60–110)
ALT	280 U/l (5–35)
Blood film (thick & thin)	Negative for malarial parasites

What is the most appropriate treatment?

- A

Aciclovir
- B

Benzympenicillin
- C

Paracetamol and rehydration
- D

Ceftriaxone
- E

Ibuprofen

Explanation



- C

Paracetamol and rehydration

This patient has dengue fever: she has travelled to an endemic area and has developed a fever with thrombocytopenia and a petechial rash, in conjunction with the classical retro-orbital headache and flu-like symptoms. No specific treatment is required: supportive therapy with paracetamol and rehydration is adequate. Occasionally in severe cases, clotting factors may be required. Diagnosis is via serology; however, due to the specialist nature of these serological tests often results will not be available for 1–2 weeks and patients must be treated according to clinical suspicion.

- A

Aciclovir

Aciclovir is an appropriate treatment for suspected encephalitis, which may present with severe headache. However, this patient's symptoms and signs are more suggestive of dengue fever: she has travelled to an endemic area, and retro-orbital headache, flu-like illness, fever, and thrombocytopenia with deranged liver function tests are typical. Dengue fever is caused by a mosquito-borne virus. Treatment is supportive; it is a haemorrhagic fever and in severe cases support with clotting factors may be required, but otherwise paracetamol and rehydration are the only treatments required.

- B

Benzympenicillin

Intramuscular benzympenicillin is an appropriate primary care treatment for suspected meningococcal meningitis; as this patient has a rash, fever and severe headache, this is an understandable differential diagnosis. However, given her travel history, the retro-orbital nature of the headache and her thrombocytopenia and deranged liver function tests, dengue fever is the likely diagnosis here. This is a virus carried by mosquitoes, and does not require treatment with antibiotics. In fact the most appropriate treatment is supportive, with paracetamol and fluids. It is a haemorrhagic fever and, in severe cases, patients may require clotting factor replacement.

- D

Ceftriaxone

Ceftriaxone would be an appropriate treatment for meningococcal meningitis; however, this patient has symptoms and signs that suggest dengue fever, rather than meningitis. A severe, retro-orbital headache is a classic symptom of dengue fever, and she has travelled from an area where dengue is endemic. Her thrombocytopenia, petechial rash and deranged liver function tests are also suggestive of dengue fever. The most appropriate treatment for this viral haemorrhagic fever is supportive, with paracetamol and fluids. Rarely, in severe cases, patients may require clotting factors.

- E

Ibuprofen

This patient has dengue fever; she has returned from an endemic area, has a petechial rash, thrombocytopenia, deranged liver function tests and a severe retro-orbital headache with flu-like symptoms. Dengue fever is a mosquito-borne viral haemorrhagic fever: due to the risk of bleeding and relative thrombocytopenia, ibuprofen and other NSAIDs should be avoided, due to their effects on platelet function. No specific treatment is required for this patient; she should be supported with fluid replacement and paracetamol. Occasionally, in severe cases, clotting factors may be required.

21444

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Session Progress

Responses Correct:	0
Responses Incorrect:	111
Responses Total:	111
Responses - % Correct:	0%

Back to Filters

Question 126 of 199

A 28-year-old man presented with a 6-month history increasing fatigue and lethargy, muscle pains and headache, accompanied by symptoms of indigestion. He had lost 4 kg in weight over the preceding 4 months. He was a voluntary aid worker and had been living in Chile for the past 5 years. Past history of note included a pulmonary embolus for which he was taking warfarin. An ECG demonstrated right bundle branch block.

Investigations:

Barium swallow	Dilated oesophagus
Oesophageal manometry	Increased pressure

Which of the following is the most appropriate treatment?



- A

Chagas' disease
- B

Fasciolosis
- C

Myasthenia gravis
- D

Oesophageal achalasia
- E

Sleeping sickness

21445

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 126 of 199

Investigations:

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Back to Filters

Question 127 of 199

A 49-year-old Turkish resident is brought to the Emergency room by his son, who he has come to the UK to visit. He is suffering from bouts of fever, and tells his son that his body is weak and he feels totally exhausted. On examination he looks thin. His family tell him he has a rash which is making his skin appear darker. His temperature is 37.8°C, and he has generalised lymphadenopathy. There is hepatosplenomegaly.

Which of the following is the most likely diagnosis?

- A

Trypanosoma cruzi
- B

Leishmania donovani
- C

Leishmania infantum
- D

Leishmania aethiopica
- E

Leishmania braziliensis

21467

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 127 of 199



A	Trypanosoma cruzi
B	Leishmania donovani
C	Leishmania infantum
D	Leishmania aethiopica
E	Leishmania braziliensis

Explanation

The evidence is that this man has chronic visceral leishmaniasis, the most likely cause of which in Southern Europe is *L. infantum*. Hepatosplenomegaly occurs due to extra-medullary production of phagocytic white blood cells, lymphadenopathy occurs although it is more likely to be seen in African patients, and darkening of the skin is also seen, (which gives rise to the Indian name of kala-azar). Other symptoms include diarrhoea and intermittent bouts of fever. ELISA testing for leishmaniasis is available and is the easiest way to make the diagnosis, although Leishmaniasis can be cultured from splenic, bone-marrow or hepatic samples. Sodium stibogluconate is the mainstay of therapy, with amphotericin B a possible alternative

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Next Question

[Previous Question](#)

Tag Question

Feedback

End Session

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Session Progress

Responses Correct:	0
Responses Incorrect:	113
Responses Total:	113
Responses - % Correct:	0%

Question 128 of 199

Investigations;

Hb	13.1 g/dl
WCC	8.9 x10 ⁹ /l (Eosinophilia)
PLT	190 x10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	4.2 mmol/l
Creatinine	110 μmol/l
MRI brain	discrete wavy linear lesions seen bilaterally on the T2 weighted scan

A	Tuberculous meningitis
B	Cysticercosis
C	Hydatid disease
D	SLE
E	Eosinophilic granulomatosis with polyangitis

Submit

Skip Question

Question 128 of 199

Investigations;

Hb	13.1 g/dl
WCC	8.9 x10 ⁹ /l (Eosinophilia)
PLT	190 x10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	4.2 mmol/l
Creatinine	110 μmol/l
MRI brain	discrete wavy linear lesions seen bilaterally on the T2 weighted scan

Which of the following is the most likely diagnosis?

- | | |
|---|--|
| A | Tuberculous meningitis |
| B | Cysticercosis |
| C | Hydatid disease |
| D | SLE |
| E | Eosinophilic granulomatosis with polyangitis |

Explanation

Eosinophilic granulomatosis with polyangiitis (EGWP) is associated with peripheral blood eosinophilia and symptoms of asthma. It is a small to medium vessel vasculitis associated with granuloma formation. Rarely, CNS involvement may occur, and the discrete lesions seen on MRI scan are likely to represent cerebral vasculitis. Over the longer term risks of cerebral thromboembolism may be increased, as well as small/ medium arterial aneurysm formation and subsequent rupture. Corticosteroids are the mainstay of management of EGWP. Cysticercosis is more likely to be associated with multiple calcified cysts on the MRI.

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Next Question

[Previous Question](#)

Tag Question

Feedback

End Session

Difficulty: Average

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Session Progress

Responses Correct:	0
Responses Incorrect:	114
Responses Total:	114
Responses - % Correct:	0%

Back to Filters

Question 129 of 199

A 19-year-old man, who has recently been on a trip to the Thai jungle, presents to the Emergency room with a severe fever of 40°C. He also has facial flushing and an erythematous rash on his skin. He has a generalised headache with severe retro-orbital pain, abdominal pain and tells you that he feels “bone weary”. On examination he has a generalised maculopapular rash, with petechiae. The site used for taking his blood sample is oozing blood.

Investigations;

Hb	12.3 g/dl
WCC	5.1 x10 ⁹ /l
PLT	55 x10 ⁹ /l
Na ⁺	134 mmol/l
K ⁺	4.9 mmol/l
Creatinine	145 mol/l
ALT	165 U/l
Albumin	34 g/l
Thick and thin films	negative for malaria

Which of the following is the most likely diagnosis?



- A

Falciparum malaria
- B

Leptospirosis
- C

Ebola virus
- D

Dengue fever
- E

Tick typhus

21490

Submit

Previous Question

Skip Question

Calculator

✔

Normal Values

✔

Back to Filters

Question 129 of 199

A 19-year-old man, who has recently been on a trip to the Thai jungle, presents to the Emergency room with a severe fever of 40°C. He also has facial flushing and an erythematous rash on his skin. He has a generalised headache with severe retro-orbital pain, abdominal pain and tells you that he feels “bone weary”. On examination he has a generalised maculopapular rash, with petechiae. The site used for taking his blood sample is oozing blood.

Investigations;

Hb	12.3 g/dl
WCC	5.1 x10 ⁹ /l
PLT	55 x10 ⁹ /l
Na ⁺	134 mmol/l
K ⁺	4.9 mmol/l
Creatinine	145 mol/l
ALT	165 U/l
Albumin	34 g/l
Thick and thin films	negative for malaria

Which of the following is the most likely diagnosis?

- A

Falciparum malaria
- B

Leptospirosis
- C

Ebola virus
- D

Dengue fever
- E

Tick typhus

Explanation

The typical picture of dengue fever is one of severe headache, myalgia and a generalised maculopapular rash. Hyponatraemia and mild elevations in transaminases are often seen, with low platelets as seen here present in around 50% of patients. Dengue is a self limiting illness in the majority of cases, but low platelet counts are of concern. Management in most patients just involves fluid replacement and paracetamol, but others who develop thrombocytopaenia and bleeding dyathesis may require blood product replacement.

21490

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Next Question

Previous Question	Tag Question
Feedback	End Session

Difficulty: Average

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	115
Responses Total:	115
Responses - % Correct:	0%

Back to Filters

Question 130 of 199

A 44-year-old single businessman/long distance traveller who works for a multi-national company and travels extensively in East Asia presents to the GP with shaggy white patches on lateral parts of the tongue, these are painless and he says he has had them for a few months. On examination he has painless lymphadenopathy and is thin, with a BMI of 19. He has shaggy white patches on the lateral borders of his tongue. He says these are painless, and the appearance of them changes over the course of a few days.

Investigations;

Hb	11.5 g/dl
WCC	4.9 x10 ⁹ /l
PLT	167 x10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	4.5 mmol/l
Creatinine	110 μmol/l

Which of the following is the most likely diagnosis?

- A

Lichen planus
- B

Oral candidiasis
- C

Herpes simplex
- D

Oral hairy leukoplakia
- E

Geographical tongue

21506

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 130 of 199

Investigations:

Hb	11.5 g/dl
WCC	4.9 x10 ⁹ /l
PLT	167 x10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	4.5 mmol/l
Creatinine	110 μ mol/l

Which of the following is the most likely diagnosis?

- | | |
|---|------------------------|
| A | Lichen planus |
| B | Oral candidiasis |
| C | Herpes simplex |
| D | Oral hairy leukoplakia |
| E | Geographical tongue |

Oral hairy leukoplakia is characterised by mostly painless white patches affecting the lateral borders of the tongue. The disease is caused by reactivation of Epstein Barr virus which occurs in patients who are immunosuppressed. The hint here is that as a single man travelling in East Asia, he may have paid for sex and been exposed to HIV. In most cases the diagnosis is clinical, but EBV can be demonstrated in epithelial cells with immunohistochemical staining. Specific treatment for oral hairy leukoplakia is not usually required, but he should be encouraged to have HIV testing and be managed with appropriate anti-retroviral therapy.

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Next Question

[Previous Question](#)

Tag Question

Feedback

End Session

Difficulty: Average

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	116
Responses Total:	116
Responses - % Correct:	0%

Back to Filters

Question 131 of 199

A 21-year-old student who has been travelling in Thailand and Laos and admits to IV heroin use comes to the clinic. He has suffered from some white patches on his tongue over the past few weeks. He says the area affected seems to change every few days, but it always tends to be the lateral borders of the tongue, and the lesions aren't actually painful. On examination he is thin, and has axillary and cervical lymphadenopathy. He has white plaques on the lateral edges of his tongue, the white material appears adherent and can't be removed by scraping.

Investigations;

Hb	12.1 g/dl
WCC	6.7 x10 ⁹ /l
PLT	182 x10 ⁹ /l
Na ⁺	140 mmol/l
K ⁺	4.5 mmol/l
Creatinine	100 μmol/l



Which of the following is the most appropriate treatment?

- A

Oral acyclovir
- B

Nystatin mouth wash
- C

Oral fluconazole
- D

Anti-retroviral therapy
- E

IV gancyclovir

21507

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 131 of 199

Investigations:

Hb	12.1 g/dl
WCC	6.7 x10 ⁹ /l
PLT	182 x10 ⁹ /l
Na ⁺	140 mmol/l
K ⁺	4.5 mmol/l
Creatinine	100 μmol/l



- | | |
|---|-------------------------|
| A | Oral acyclovir |
| B | Nystatin mouth wash |
| C | Oral fluconazole |
| D | Anti-retroviral therapy |
| E | IV gancyclovir |

The white plaques associated with oral candidiasis can be scraped off to reveal an erythematous layer underneath, but in hairy leukoplakia, the plaques are adherent. Oral hairy leukoplakia is caused by reactivated Epstein Barr virus in the presence of immunosuppression, and this man's history raises the possibility of HIV infection. No specific therapy is required for oral hairy leukoplakia, and patients are usually managed with systemic anti-retroviral therapy alone.

Rate this question:

Next Question

Tag Question

End Session

Difficulty: Average

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	117
Responses Total:	117
Responses - % Correct:	0%

Back to Filters

Question 132 of 199

A 32-year-old relief worker who helps set up Christian Aid projects in Bolivia returns from the country and presents to the Emergency department with general malaise, lethargy, and difficulty swallowing. He has lived there for the past 6 years. On examination his BP is 110/70 mmHg, his pulse is 95/min, and his jugular venous pulse is elevated. He has bilateral pitting oedema of both legs, and bilateral basal inspiratory crackles on auscultation of his chest.

Investigations;

Hb	11.1 g/dl
WCC	4.9 x10 ⁹ /l
PLT	180 x10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	4.5 mmol/l
Urea	9.1 mmol/l
Creatinine	140 mol/l
Barium swallow	dilated oesophagus



Which of the following is the most likely diagnosis?

- A

Leishmania braziliensis
- B

Trypanosoma cruzi
- C

Leishmania donovani
- D

Leishmania aethiopica
- E

Trypanosoma brucei

21508

Submit

Previous QuestionSkip Question

Calculator✔

Normal Values✔

Back to Filters

Question 132 of 199

A 32-year-old relief worker who helps set up Christian Aid projects in Bolivia returns from the country and presents to the Emergency department with general malaise, lethargy, and difficulty swallowing. He has lived there for the past 6 years. On examination his BP is 110/70 mmHg, his pulse is 95/min, and his jugular venous pulse is elevated. He has bilateral pitting oedema of both legs, and bilateral basal inspiratory crackles on auscultation of his chest.

Investigations;

Hb	11.1 g/dl
WCC	4.9 x10 ⁹ /l
PLT	180 x10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	4.5 mmol/l
Urea	9.1 mmol/l
Creatinine	140 mol/l
Barium swallow	dilated oesophagus



Which of the following is the most likely diagnosis?

- A

Leishmania braziliensis
- B

Trypanosoma cruzi
- C

Leishmania donovani
- D

Leishmania aethiopica
- E

Trypanosoma brucei

Explanation

This man has Chagas disease as evidenced by oesophageal dilatation and dysmotility and congestive cardiac failure. The cause is trypanosome cruzi. Leishmania braziliensis is a cause of cutaneous leishmaniasis, donovani is a cause of visceral leishmaniasis in India and Africa, and T brucei is responsible for African trypanosomiasis. Diagnosis is generally based on serologic testing, previously chronic symptoms of Chagas disease were thought not to respond to anti trypanosomal therapy, although some evidence exists that nifurtimox may be of benefit for some patients.

21508

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Next Question

Previous Question

Feedback

Tag Question

End Session

Difficulty: Average

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	118
Responses Total:	118
Responses - % Correct:	0%

Question 133 of 199

Investigations;

Hb	11.5 g/dl
WCC	13.2 $\times 10^9$ /l
PLT	180 $\times 10^9$ /l
Na ⁺	139 mmol/l
K ⁺	4.2 mmol/l
Creatinine	175 μ mol/l
CK	412 U/l (24-195 U/l)
Wound culture	gram positive rods

11

- | | |
|---|-------------------------|
| A | Proteus spp |
| B | Staphylococcus aureus |
| C | Clostridium perfringens |
| D | Pseudomonas |
| E | Streptococcus viridans |

Submit

[Previous Question](#)

Skip Question

Calculator

Normal Values

Back to Filters

Question 133 of 199

A 32-year-old Fireman is admitted with extensive burns. 3 days later you notice that the burns on his forearms which have been kept very moist are beginning to deteriorate, with an extensive violet/ black discolouration, formation of bullae and sweet smelling green pus. He is pyrexial 38.1°C.

Investigations;

Hb	11.5 g/dl
WCC	13.2 x10 ⁹ /l
PLT	180 x10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	4.2 mmol/l
Creatinine	175 µmol/l
CK	412 U/l (24-195 U/l)
Wound culture	gram positive rods



Which of the following is the most likely diagnosis?

- A

Proteus spp
- B

Staphlyococcus aureus
- C

Clostridium perfringens
- D

Pseudomonas
- E

Streptococcus viridans

Explanation

The sweet smelling smell is a sign of Clostridium perfringens infection, as are the multiple bullae. Clostridium infection is characterised by the presence of gram positive rods, whereas pseudomonas is characterised by gram negative rods. The raised CK may be due to underlying muscle necrosis.

21525

Rate this question:      

Next Question

Previous Question

Feedback

Tag Question

End Session

Difficulty: Average

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	119
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Back to Filters

Question 134 of 199

A 32-year-old Fireman is admitted with extensive burns. 3 days later you notice that the burns on his forearms which have been kept very moist are beginning to deteriorate, with an extensive violet/ black discolouration, formation of bullae and sweet smelling green pus. He is pyrexial 38.1°C.

Investigations;

Hb	11.5 g/dl
WCC	13.2 x10 ⁹ /l
PLT	180 x10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	4.2 mmol/l
Creatinine	175 μ mol/l
CK	412 U/l (24-195 U/l)
Wound culture	Gram positive rods

Which of the following represents the most appropriate therapy?

- A

Aspiration of bullae and oral ciprofloxacin
- B

Penicillin V
- C

IV benzylpenicillin and surgical debridement
- D

Oral chloramphenicol
- E

Oral clindamycin

21526

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 134 of 199

Investigations;

Hb	11.5 g/dl
WCC	13.2 x10 ⁹ /l
PLT	180 x10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	4.2 mmol/l
Creatinine	175 μmol/l
CK	412 U/l (24-195 U/l)
Wound culture	Gram positive rods

Which of the following represents the most appropriate therapy?

A	Aspiration of bullae and oral ciprofloxacin
B	Penicillin V
C	IV benzylpenicillin and surgical debridement
D	Oral chloramphenicol
E	Oral clindamycin

Debridement of dead tissue is crucial in the management of clostridium perfringens infection. IV benzylpenicillin is the antibiotic of choice, with chloramphenicol and clindamycin alternatives in patients who are penicillin allergic. Prognosis is dependent on recognition of infection and appropriate early intervention. Severe shock and myonecrosis are associated with the poorest outcome.

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[Next Question](#)

Previous Question

Tag Question

Feedback

End Session

Difficulty: Average

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	120
Responses Total:	120
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Back to Filters

Question 135 of 199

A 28-year-old woman is moving to South America with her husband. She is 12 weeks pregnant and wants to review her vaccination status prior to travelling.

Which of the following vaccines is not contraindicated in pregnancy?



- | | |
|---|----------------------|
| A | Yellow fever vaccine |
| B | Rubella |
| C | BCG |
| D | Tetanus |
| E | Varicella zoster |

21528

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Back to Filters

Question 135 of 199

A 28-year-old woman is moving to South America with her husband. She is 12 weeks pregnant and wants to review her vaccination status prior to travelling.

Which of the following vaccines is not contraindicated in pregnancy?

A	Yellow fever vaccine
B	Rubella
C	BCG
D	Tetanus
E	Varicella zoster

Explanation

Tetanus vaccine is based on the toxoid, whereas the others are all live attenuated vaccines. Hence their use in pregnancy is not recommended. Indeed there is virtually no data on use of any vaccine in pregnancy, and as such even antigen based or killed vaccines usually carry a statement of “not recommended” unless benefit outweighs potential risks. Influenza vaccine is generally accepted as usable - after a paper in 2009 suggested the balance of risk is in favour of giving it. Diptheria and hepatitis B vaccines are other commonly used examples which are permitted in pregnancy.

21528

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Next Question

Previous Question	Tag Question
Feedback	End Session

Difficulty: Average

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Session Progress

Responses Correct:	0
Responses Incorrect:	121
Responses Total:	121
Responses - % Correct:	0%

Question 136 of 199

11

Hb	13.4 g/dl
WCC	12.1 x10 ⁹ /l
PLT	204 x10 ⁹ /l
ESR	90 mm/hr
Na ⁺	141 mmol/l
K ⁺	4.3 mmol/l
Creatinine	120 μmol/l
Plain spinal x-ray	disc space narrowing at the level of T8

A	Staphylococcus epidermidis
B	Clostridium perfringens
C	Staphylococcus aureus
D	Bacteroides spp
E	Streptococcus pyogenes

Submit

Skip Question

Question 136 of 199

Investigations;

Hb	13.4 g/dl
WCC	12.1 x10 ⁹ /l
PLT	204 x10 ⁹ /l
ESR	90 mm/hr
Na ⁺	141 mmol/l
K ⁺	4.3 mmol/l
Creatinine	120 μmol/l
Plain spinal x-ray	disc space narrowing at the level of T8



- | | |
|---|----------------------------|
| A | Staphylococcus epidermidis |
| B | Clostridium perfringens |
| C | Staphylococcus aureus |
| D | Bacteroides spp |
| E | Streptococcus pyogenes |

Explanation

Bearing in mind the extensive soft tissue injury to his right lower leg, *Staphylococcus aureus* is the most likely cause of his back pain, (probably due to discitis) seen here. MRI scanning is the most useful radiological investigation to confirm the diagnosis, with blood culture or needle biopsy of the disc space helping to provide a bacteriological diagnosis. Parenteral antibiotic therapy is usually administered for 6-8 weeks in total.

Rate this question:

Next Question

[Previous Question](#)

Tag Question

Feedback

End Session

Difficulty: Average

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	122
Responses Total:	122
Responses - % Correct:	0%

Back to Filters

Question 137 of 199

A 23-year-old woman presents with lower abdominal pain on intercourse. She admits to unprotected sexual intercourse with 3 male partners over the last 4 months. There has also been a history of bleeding after intercourse on 2-3 occasions, and bilateral pelvic pain and fever on one occasion which was diagnosed by her GP as a urinary tract infection. On examination she is pyrexial 37.6°C, and there is bilateral pain on bimanual palpation.

Investigations;

Hb	12.6 g/dl
WCC	9.5 x10 ⁹ /l
PLT	194 x10 ⁹ /l
Na ⁺	138 mmol/l
K ⁺	4.4 mmol/l
Creatinine	87 mol/l
Cervical smear	neutrophils

Which of the following is the most likely diagnosis?

- A

Chlamydia
- B

Gonorrhoea
- C

Candidiasis
- D

Vaginosis
- E

Trichomonas

23326

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 137 of 199

Investigations;

Hb	12.6 g/dl
WCC	9.5 x10 ⁹ /l
PLT	194 x10 ⁹ /l
Na ⁺	138 mmol/l
K ⁺	4.4 mmol/l
Creatinine	87 mol/l
Cervical smear	neutrophils

- **Prevalence** – the proportion of people with a disease at a particular point in time
- **Incidence** – the proportion of people who develop a disease over a period of time
- **Prevalence** = **Incidence** x **Duration**

A	Chlamydia
B	Gonorrhoea
C	Candidiasis
D	Vaginosis
E	Trichomonas

This woman has a history of unprotected sexual intercourse and her symptoms fit with chlamydial infection. The presence of neutrophils on cervical smear in the absence of organisms seen on light microscopy also fits with the diagnosis. Chlamydia is the commonest sexually transmitted infection in the UK and has a prevalence of around 8% in the under 20 years age group and 5% in the 20-24 years age band. Antigen testing is now widely available, but in this situation endocervical swab and culture on special media is the preferred method for detection.

Rate this question:

Next Question

[Previous Question](#)

[Tag Question](#)

[Feedback](#)

[End Session](#)

Difficulty: Average

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Session Progress

Responses Correct:	0
Responses Incorrect:	123
Responses Total:	123
Responses - % Correct:	0%

Back to Filters

Question 138 of 199

A 29-year-old man who has been travelling extensively in the Far East comes to the clinic with increasing shortness of breath. He has a history of asthma, but has noticed his cough and wheeze have got much worse over the past few days since he returned home. Additionally he has had a rash which has worsened over the past few days. On examination he is pyrexial 37.8°C and has a linear erythematous rash over his groin and buttocks. He has audible wheeze on auscultation of his chest.

Investigations;

Hb	12.4 g/dl
WCC	10.0 x10 ⁹ /l (raised eosinophils)
PLT	201 x10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	4.5 mmol/l
Creatinine	115 mol/l
CXR	diffuse pulmonary infiltrates
Ig electrophoresis	marked elevation in IgE



Which of the following is the most appropriate treatment?

- A

Prednisolone
- B

Metronidazole
- C

IV hydrocortisone
- D

Albendazole
- E

Ivermectin

23360

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 138 of 199

Investigations;

Hb	12.4 g/dl
WCC	10.0 x10 ⁹ /l (raised eosinophils)
PLT	201 x10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	4.5 mmol/l
Creatinine	115 μmol/l
CXR	diffuse pulmonary infiltrates
Ig electrophoresis	marked elevation in IgE



- | | |
|---|-------------------|
| A | Prednisolone |
| B | Metronidazole |
| C | IV hydrocortisone |
| D | Albendazole |
| E | Ivermectin |

The development of a linear erythematous rash and symptoms of respiratory involvement, coupled with raised eosinophils and travel to the Far East raises the possibility of *Strongyloides* infection. Therapy of choice is ivermectin, albendazole as an alternative, although some studies suggest it may be less effective. *Strongyloides* infection does not necessarily produce acute symptoms; chronically infected patients may be asymptomatic for years and then develop paroxysms of acute active infection. The rash is due to larval migration, as are the pulmonary symptoms.

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[Next Question](#)

Tag Question

End Session

Difficulty: Average

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	124
Responses Total:	124
Responses - % Correct:	0%

Back to Filters

Question 139 of 199

A 53-year-old woman has SLE and is currently treated with high dose steroids and hydroxychloroquine. She helps look after her grandchildren during the week, and comes to see you because she has been exposed to her two-year-old granddaughter who has chicken pox. She is certain that she has never had chicken pox.

Investigations;

Hb	11.9 g/dl
WCC	7.9 x10 ⁹ /l
PLT	203 x10 ⁹ /l
Na ⁺	140 mmol/l
K ⁺	4.4 mmol/l
Creatinine	129 mol/l
IgG Varicella antibody	positive

Which of the following is the most appropriate way to manage her?

- A

Varicella zoster immunoglobulin
- B

Gancyclovir
- C

Acyclovir
- D

Chicken pox immunisation
- E

Observation

23365

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 139 of 199

Investigations;

Hb	11.9 g/dl
WCC	7.9 x10 ⁹ /l
PLT	203 x10 ⁹ /l
Na ⁺	140 mmol/l
K ⁺	4.4 mmol/l
Creatinine	129 mol/l
IgG Varicella antibody	positive

- | | |
|---|---------------------------------|
| A | Varicella zoster immunoglobulin |
| B | Gancyclovir |
| C | Acyclovir |
| D | Chicken pox immunisation |
| E | Observation |

Explanation

The fact that this woman is varicella antibody positive implies that she has a history of previous chicken pox infection. Patients may have been infected as very small children or even have had only one or two lesions in relation to the primary infection. Where the patient is antibody negative then VZIG should be given where possible within 4 days of the contact. In total it is thought to confer protection for up to 3 weeks. Chicken pox immunisation is a live vaccination, and as such should not be given here.

Rate this question:

Next Question

[Previous Question](#)

Tag Question

Feedback

End Session

Difficulty: Average

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	125
Responses Total:	125
Responses - % Correct:	0%

Back to Filters

Question 140 of 199

A 32-year-old patient who is known to have tuberculosis and HIV comes to the clinic complaining of a progressive deterioration in his visual acuity and loss of colour vision. He does not have significant ocular pain at present. His HIV was diagnosed at the same time as his TB about 6 weeks ago, and blood work indicates a significant improvement in his CD4 count over the past few weeks in response to HAART. He has been prescribed quadruple anti-tuberculous therapy. Bilateral fundoscopy is unremarkable.

Which of the following is the most likely diagnosis?



A	Toxoplasmosis
B	CMV retinitis
C	Rifampicin toxicity
D	Ethambutol toxicity
E	Retinal vein thrombosis

27757

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Question 140 of 199

-
-
-

-
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-

A	Toxoplasmosis
B	CMV retinitis
C	Rifampicin toxicity
D	Ethambutol toxicity
E	Retinal vein thrombosis

Explanation

Ethambutol is known to lead to optic neuritis, which is thought to be related both to duration of exposure and dose administered. During the early stages of optic neuritis, fundoscopy may well be normal, and patients complain of slowly deteriorating visual acuity and loss of colour differentiation. Management involves discontinuation of the ethambutol as soon as the diagnosis becomes apparent, recoverability of vision is the subject of some debate, with a number of patients reporting significant visual deficit up to 3 years later.

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Next Question

[Previous Question](#)

[Tag Question](#)

[Feedback](#)

[End Session](#)

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Responses Total:	126
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Back to Filters

Question 141 of 199

A 66-year-old man attends the Emergency Department complaining of shortness of breath and a cough productive of green sputum for the past 5 days.

On examination he has coarse crackles at his L lung base and is tachypnoeic and tachycardic.

A chest X-ray reveals left lower lobe consolidation. A diagnosis of community-acquired pneumonia is made.

Routine blood tests reveal:

Hb	9.2 g/l
MCV	69 fl
WCC	14.5 × 10 ⁶ /l
neutrophils	10 × 10 ⁶ /l
PLTs	160 × 10 ⁶ /l
Urea	6.5 mmol/l
Creatinine	130 μmol/l
Na ⁺	130 mmol/l
K ⁺	4.9 mmol/l
LFTs	normal

Which of the following factors would be most indicative of severity in this patient?

- A

Neutrophilia
- B

Respiratory rate of 32/min
- C

BP of 110/65 mmHg
- D

Evidence of focal consolidation
- E

Pulse rate of 120/min

31662

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Question 141 of 199

On examination he has coarse crackles at his L lung base and is tachypnoeic and tachycardic.

Routine blood tests reveal:

Hb	9.2 g/l
MCV	69 fl
WCC	$14.5 \times 10^6/\text{l}$
neutrophils	$10 \times 10^6/\text{l}$
PLTs	$160 \times 10^6/\text{l}$
Urea	6.5 mmol/l
Creatinine	130 $\mu\text{mol/l}$
Na ⁺	130 mmol/l
K ⁺	4.9 mmol/l
LFTs	normal

Verity

- | | |
|---|---------------------------------|
| A | Neutrophilia |
| B | Respiratory rate of 32/min |
| C | BP of 110/65 mmHg |
| D | Evidence of focal consolidation |
| E | Pulse rate of 120/min |

This is the only one of the CURB-65 criteria. A 5-point score, 1 point for each of Confusion, Urea >7 mmol/l, Respiratory rate ≥ 30 /min, low systolic (<90 mmHg) or diastolic (≤ 60 mmHg) Blood pressure, age ≥ 65 years (CURB-65 score) based on information available at initial hospital assessment, enabled patients to be stratified according to increasing risk of mortality or need for intensive care admission (score 0, 0.7%; score 1, 3.2%; score 2, 13%; score 3, 17%; score 4, 41.5% and score 5, 57%).

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Tag Question

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Responses Correct:	0
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Back to Filters

Question 142 of 199

A 38-year-old man returns after a 3 month ‘between jobs’ tour to South East Asia. He has visited Thailand, China, Hong-Kong and Australia. He is worried about a firm, painless ulcer that has developed near the tip of his penis.

Which of the following fits best with his underlying diagnosis?

- A

Herpes infection
- B

Non-specific urethritis
- C

Gonorrhoea
- D

Syphilis
- E

Yaws

33148

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 142 of 199

A 38-year-old man returns after a 3 month ‘between jobs’ tour to South East Asia. He has visited Thailand, China, Hong-Kong and Australia. He is worried about a firm, painless ulcer that has developed near the tip of his penis.

Which of the following fits best with his underlying diagnosis?

- A

Herpes infection
- B

Non-specific urethritis
- C

Gonorrhoea
- D

Syphilis
- E

Yaws

Explanation

This presentation in a single man who has returned from a visit to the Far East is highly suggestive of syphilis infection: 10-90 days after exposure a papule develops at the site of inoculation. This ulcerates to form a firm, painless chancre which then takes 2-3 weeks to heal. Treatment of choice is a single dose of long-acting IM penicillin. In patients presenting with late stage disease, treatment should be extended for a further week. Doxycycline, azithromycin or erythromycin are alternative treatments in patients who are sensitive to penicillin. The Jarisch–Herxheimer reaction occurs in up to 50% of patients with primary syphilis and up to 90% of patients with secondary syphilis.

33148

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Next Question

Previous Question

Feedback

Tag Question

End Session

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Responses Correct:	0
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Responses - % Correct:	0%

Back to Filters

Question 143 of 199

A 27-year-old homosexual man presents to his general practitioner (GP) for review with a 3-day history of ‘glandular fever’ type symptoms. He admits to unprotected sex after a night out some six weeks ago. There is a past medical history of syphilis.

Blood investigations show:

Platelets	40 × 10 ⁹ /l
WCC	Relative lymphopaenia with increase in reactive lymphocytes
Hepatitis B surface antigen (Hep BsAg)	Negative
Hepatitis B Core (HepBc) antibody	Positive
HIV antibody	Negative
CMV	Negative
EBV antibody	Negative

Which of the following diagnoses fits best with this clinical picture?

- A

HIV infection
- B

Influenza
- C

Herpes infection
- D

Early Epstein-Barr virus infection
- E

Streptococcal sore throat

33149

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 143 of 199

3

3

Platelets	40 × 10 ⁹ /l
WCC	Relative lymphopaenia with increase in reactive lymphocytes
Hepatitis B surface antigen (Hep BsAg)	Negative
Hepatitis B Core (HepBc) antibody	Positive
HIV antibody	Negative
CMV	Negative
EBV antibody	Negative

Which of the following diagnoses fits best with this clinical picture?

A	HIV infection
B	Influenza
C	Herpes infection
D	Early Epstein-Barr virus infection
E	Streptococcal sore throat

Explanation

HIV seroconversion illness usually occurs some 6-8 weeks after primary infection. Symptoms are similar to those of glandular fever, with occasionally a maculopapular rash. Neurological symptoms are common. There may be a marked early fall in CD4-positive lymphocytes. Although antibodies may be absent during the early stages of HIV infection, the levels of circulating viral RNA will be raised, and viral p24 core proteins may be detectable. HIV virus culture, although possible is only carried out by a few specialist centres.

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Next Question

[Previous Question](#)

Tag Question

Feedback

End Session

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Back to Filters

Question 144 of 199

A 21-year-old medical student is brought to the emergency department by ambulance. She was confused when speaking to her sister the previous evening and had been complaining of a sore throat and a ‘head cold’. Flatmates had found her collapsed at home.

On examination there was purpuric skin rash and evidence of subconjunctival haemorrhage; blood pressure was 90/60 mmHg, pulse 110/min, lung fields were clear to auscultation and both heart sounds were present with no added sounds. Pupils were not reactive to light; it was difficult to elicit tendon reflexes.

Blood testing revealed:

- Neutrophilia
- Raised activated partial thromboplastin time (APTT)
- Raised urea and creatinine
- Glucose 4.1 mmol/l

Which of the following represents your initial treatment in this case?

A	IV Ceftriaxone
B	IV Benzylpenicillin
C	IV hydrocortisone
D	IV Glucose
E	IV Naloxone

33150

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Back to Filters

Question 144 of 199

A 21-year-old medical student is brought to the emergency department by ambulance. She was confused when speaking to her sister the previous evening and had been complaining of a sore throat and a ‘head cold’. Flatmates had found her collapsed at home.

On examination there was purpuric skin rash and evidence of subconjunctival haemorrhage; blood pressure was 90/60 mmHg, pulse 110/min, lung fields were clear to auscultation and both heart sounds were present with no added sounds. Pupils were not reactive to light; it was difficult to elicit tendon reflexes.

Blood testing revealed:

- Neutrophilia
- Raised activated partial thromboplastin time (APTT)
- Raised urea and creatinine
- Glucose 4.1 mmol/l

Which of the following represents your initial treatment in this case?

A	IV Ceftriaxone
B	IV Benzylpenicillin
C	IV hydrocortisone
D	IV Glucose
E	IV Naloxone

Explanation

This patient has meningitis, potentially meningococcal meningitis until proven otherwise. Treatment of choice would be an initial bolus of IV Ceftriaxone. Clearly this patient is in a state of circulatory compromise and will require intensive therapy unit (ITU) care with circulatory support, intubation for airway protection and close monitoring. CT scan is required before progressing to lumbar puncture to rule out cerebral oedema and risk of coning on lumbar puncture. (Cerebral herniation occurs in about 5% of patients with acute bacterial meningitis, accounting for about 30% of the mortality; in many reports, LP is temporally strongly associated with this event of herniation and is most likely causative based on pathophysiological arguments.) Bacterial meningitis would give typically turbid or purulent cerebrospinal fluid (CSF), 200–300 polymorphs/mm³, 0.5–2.0 g/l protein and CSF glucose levels less than 50% of the blood value. It is important to treat contacts of patients with meningococcal disease with prophylaxis against infection. Ciprofloxacin is the oral therapy of choice, with a single dose of Ceftriaxone the treatment of choice in pregnant women.

33150

Rate this question:

Next Question

Previous Question	Tag Question
Feedback	End Session

Difficulty: Average

Peer Responses %

Session Progress

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Back to Filters

Question 145 of 199

A 28-year-old man presents to the emergency department with a severe headache and neck stiffness. There has been a past history of diarrhoea over the past few days. CT scan is normal.

Lumbar puncture reveals:

Opening pressure	22 cmHg
Lymphocytosis	80 cells/mm ³
Cerebrospinal fluid (CSF) protein	Increased
CSF glucose	65% of plasma level

CXR reveals no acute changes.

Which of the following is the next investigation of choice?



- A

CSF spectrophotometry
- B

CSF culture
- C

Magnetic resonance imaging (MRI) scan of the brain
- D

Blood cultures
- E

Sputum culture

33151

Submit

Previous QuestionSkip Question

Calculator✔

Normal Values✔

Question 145 of 199

Lumbar puncture reveals:

Opening pressure	22 cmHg
Lymphocytosis	80 cells/mm ³
Cerebrospinal fluid (CSF) protein	Increased
CSF glucose	65% of plasma level

Which of the following is the next investigation of choice?

- | | |
|---|--|
| A | CSF spectrophotometry |
| B | CSF culture |
| C | Magnetic resonance imaging (MRI) scan of the brain |
| D | Blood cultures |
| E | Sputum culture |

Explanation

While viral meningitis is the most likely diagnosis, CSF should still be sent for culture to exclude a bacterial cause. Viral meningitis has an equal sex incidence and is more likely to occur in patients with abnormal cell-mediated immunity or agammaglobulinaemia, who have difficulty with viral clearance. The history of an acute diarrhoeal illness suggests enterovirus as the infective agent. Diagnosis may be confirmed on cerebrospinal fluid (CSF) viral polymerase chain reaction (PCR). Where herpes meningoencephalitis is a possible diagnosis, IV Aciclovir should be started immediately after lumbar puncture. Ganciclovir for CMV-related infections is reserved for severe cases with positive CMV culture or in a context of immunosuppression. For other viral meningitides no specific anti-viral therapy exists and pain relief and supportive treatments should be given.

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Next Question

[Previous Question](#)

Tag Question

Feedback

End Session

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Responses Total:	131
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Back to Filters

Question 146 of 199

A 28-year-old single man presents with warts around the anal margin and on the shaft and subpreputial space on the penis. Examination confirms the presence of multiple papillomas. He says this have got rapidly worse over the past few weeks. There is a past history of asthma for which he takes combination steroid and long-acting beta-agonist inhaler, which he thinks caused an episode of oral thrush, but nil else of note.

Which of the following represents the treatment of choice for his genital warts?

- | | |
|---|----------------------|
| A | Aciclovir ointment |
| B | Oral Aciclovir |
| C | Podophyllin ointment |
| D | Oral Valaciclovir |
| E | Oral Doxycycline |

33152

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Question 146 of 199

Which of the following represents the treatment of choice for his genital warts?

A	Aciclovir ointment
B	Oral Aciclovir
C	Podophyllin ointment
D	Oral Valaciclovir
E	Oral Doxycycline

Local agents used for treatment of genital warts include Podophyllin extract 10–25%, Podophyllotoxin, Imiquimod and Trichloroacetic acid. In extensive or recalcitrant infection, cryotherapy, electrocautery or laser ablation are other options. Sexual contacts should be examined and treated if necessary. One explanation for increasingly severe genital wart infection, and the episode of thrush, could be infection with HIV. The commonest used marker of HIV infection is immunoglobulin G (IgG) antibody to viral envelope components (gp120 and its subunits).

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Question 147 of 199

Over the past 2 days his right knee has become increasingly red and swollen and is now extremely painful with extreme limitation of movement. He has also started to feel hot and feverish.

3

On microscopy what is most likely to be seen?

A	High numbers of neutrophils
B	Gram-positive cocci
C	Gram-negative diplococci
D	Rhomboid crystals, positively birefringent in polarised light
E	Needle-shaped crystals, negatively birefringent in polarised light

Submit

Skip Question

Back to Filters

Question 147 of 199

A 21-year-old man presents to A&E. He has been feeling generally unwell for the past 2 weeks. At first he noticed general joint aches in his hands, wrists and ankles, then developed a non-itchy red rash all over his body, particularly his lower legs.

Over the past 2 days his right knee has become increasingly red and swollen and is now extremely painful with extreme limitation of movement. He has also started to feel hot and feverish.

On examination he has an erythematous maculopapular rash formed of small (<5 mm) lesions in the distribution mentioned above. He has a temperature of 38.5°C, pulse 105/min. His right knee is extremely swollen, erythematous and exquisitely painful with a large effusion. On examination of the other joints there is some evidence of tenosynovitis at the wrists and on the dorsums of the hands.

The joint is aspirated and a turbid yellow fluid is removed.

On microscopy what is most likely to be seen?

A	High numbers of neutrophils
B	Gram-positive cocci
C	Gram-negative diplococci
D	Rhomoid crystals, positively birefringent in polarised light
E	Needle-shaped crystals, negatively birefringent in polarised light

Explanation

Although the most likely pathogen causing septic arthritis in such a young person is gonorrhoea, which is a Gram-negative diplococcus, organisms are seen in the synovial joint fluid less than 25% of the time. This history is classic of disseminated gonococcal infection (DGI) with a bacteraemic phase characterised by the triad of tenosynovitis, dermatitis and arthritis, followed by a localised phase where the arthritis can either resolve spontaneously in 40–60% of cases or develop into a septic arthritis. Clearly, intravenous antibiotics are needed for this degree of sepsis and joint involvement, examination of the joint and washout under anaesthetic is also indicated. There is significant resistance of gonorrhoea to penicillin and ciprofloxacin, therefore ceftriaxone is the treatment of choice.

33153

Rate this question:

Next Question

Previous Question	Tag Question
Feedback	End Session

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Session Progress

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Question 148 of 199

He presents with a 2-week history of worsening bloody diarrhoea with severe rectal pain, especially on defecation. On examination he has a fever of 37.8°C, pulse 95/min. On examination the abdomen is soft with some mild lower abdominal discomfort. PR examination is very painful and reveals some blood mixed in with stool. Large tender inguinal lymphadenopathy was present in the nodes of the right groin.

11

11

Submit

Skip Question

Back to Filters

Question 148 of 199

A 35-year-old HIV-positive gay man presents to the gastroenterology clinic. He has been HIV-positive for 4 years and is on treatment with lamivudine (3TC), tenofovir and Efavirenz. His most recent CD4 count is $410 \times 10^6/l$ (normal range 300–1400) and the HIV viral load (VL) is undetectable. He has had several sexual partners in the past 6 months and doesn't use condoms. All his partners are also HIV-positive.

He presents with a 2-week history of worsening bloody diarrhoea with severe rectal pain, especially on defecation. On examination he has a fever of $37.8^{\circ}C$, pulse 95/min. On examination the abdomen is soft with some mild lower abdominal discomfort. PR examination is very painful and reveals some blood mixed in with stool. Large tender inguinal lymphadenopathy was present in the nodes of the right groin.

Proctoscopy was attempted but was too painful.

What is the most likely diagnosis?

A	Rectal gonorrhoea
B	CMV colitis
C	Chancroid
D	Lymphogranuloma venereum
E	Visceral Kaposi's sarcoma

Explanation

Lymphogranuloma venereum (LGV) is a systemic disease caused by one of three invasive serovars, L1, L2 or L3, of Chlamydia trachomatis. There has been a recent increase of LGV amongst gay men, especially HIV-positive men, in London and Manchester. In this population the typical clinical picture is of proctitis with PR bleeding and mucus, tenesmus and rectal pain, classically associated with lymphadenopathy. The inflammation can be severe, causing fistulas and mimicking Crohn's disease. Rectal gonorrhoea can cause tenderness and a purulent rectal discharge but would not generally cause such a severe proctitis. Positive diagnosis of LGV is difficult, requiring a combination of good clinical acumen and supportive investigations. LGV can be suspected on positive chlamydial serology, isolation of Chlamydia trachomatis either from the infected site or histological identification of chlamydia in infected tissue. There is no need to proceed to rectal biopsy in this patient as a rectal chlamydia SDA test or positive serology would be sufficient. Azithromycin is the treatment of choice, with doxycycline an alternative in those who fail to tolerate it.

33154

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Question 149 of 199

Some routine blood tests are taken.
The next day the full blood count is available:

Hb	9.5 g/dl
WCC	$4.6 \times 10^9/\text{l}$
Neut	$3.0 \times 10^9/\text{l}$
PLT	$11 \times 10^9/\text{l}$

11

- | | |
|---|------------------------|
| A | Coombs test |
| B | Renal function |
| C | CD4 count |
| D | Bone marrow aspiration |
| E | Abdominal US |

Submit

Skip Question

Back to Filters

Question 149 of 199

A newly diagnosed HIV patient presents to clinic for his first appointment. He feels somewhat tired at present and has had a few headaches recently, although has always been prone to these. He has no other medical problems and is on no medication. He drinks 2 units of alcohol per week and does not smoke or use any recreational drugs.

A thorough examination of the cardiovascular, respiratory, abdominal and neurological systems reveals a mild fever (37.6°C). He has some purpuric lesions on his lower limbs.

Some routine blood tests are taken.
The next day the full blood count is available:

Hb	9.5 g/dl
WCC	4.6 × 10 ⁹ /l
Neut	3.0 × 10 ⁹ /l
PLT	11 × 10 ⁹ /l

What is the most important test to do next?

- A

Coombs test
- B

Renal function
- C

CD4 count
- D

Bone marrow aspiration
- E

Abdominal US

Explanation

The most important thing to exclude is thrombotic thrombocytopenic purpura. Episodes of which are seen in conjunction with HIV infection. Thrombotic thrombocytopenic purpura (TTP) is a clinical syndrome characterised by the classic pentad of fever, neurological dysfunction, renal dysfunction, microangiopathic haemolytic anaemia and thrombocytopenia. TTP is associated with renal impairment, as such renal function is the most important initial investigation. A differential is HIV related ITP, often an early manifestation of HIV infection occurring with CD4+ lymphocyte counts between 300 and 600 cells/mm³. HIV-ITP is therefore commonly included among those conditions characterising the middle-stage HIV disease. ITP typically improves as HIV disease progresses. ITP also responds to the introduction of HAART.

33155

Rate this question:

Next Question

Previous Question	Tag Question
Feedback	End Session

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Back to Filters

Question 150 of 199

A 23-year-old woman presents to the GU clinic complaining of painful genital ulceration. The lesions developed 3 days ago and are still increasing in number. They are extremely painful especially when passing urine. She also has some flu-like symptoms with aching muscles, slightly fever and myalgia.

On examination, there are multiple small white painful ulcers all over the genitals. She has tender lymphadenopathy in the inguinal region. A full STI screen is performed and preliminary microscopy of vaginal swabs reveals candida.

What is the best management?

- A

Take viral swab of the ulcers, give clotrimazole pessary pending results
- B

Take blood for HSV (Herpes Simplex Virus)1 antibodies, give clotrimazole pessary pending results
- C

Take blood for HSV 2 antibodies, give 5 days’ treatment dose aciclovir, give clotrimazole pessary
- D

Take viral swab ulcer, give 5 days’ treatment dose aciclovir, give clotrimazole pessary
- E

Take viral swab ulcer and blood for HSV 2 antibodies, give clotrimazole pessary pending results

33156

Submit

Previous QuestionSkip Question

Calculator✔

Normal Values✔

Back to Filters

Question 150 of 199

A 23-year-old woman presents to the GU clinic complaining of painful genital ulceration. The lesions developed 3 days ago and are still increasing in number. They are extremely painful especially when passing urine. She also has some flu-like symptoms with aching muscles, slightly fever and myalgia.

On examination, there are multiple small white painful ulcers all over the genitals. She has tender lymphadenopathy in the inguinal region. A full STI screen is performed and preliminary microscopy of vaginal swabs reveals candida.

What is the best management?

A	Take viral swab of the ulcers, give clotrimazole pessary pending results	≡
B	Take blood for HSV (Herpes Simplex Virus)1 antibodies, give clotrimazole pessary pending results	
C	Take blood for HSV 2 antibodies, give 5 days' treatment dose aciclovir, give clotrimazole pessary	
D	Take viral swab ulcer, give 5 days' treatment dose aciclovir, give clotrimazole pessary	
E	Take viral swab ulcer and blood for HSV 2 antibodies, give clotrimazole pessary pending results	

Explanation

The diagnostic test of choice is HSV PCR on a swab from an ulcer. As regards serology, most assays are non-specific for HSV types 1 and 2 and have no value in the diagnosis of genital HSV. Specific type 2 antibody assays have a low positive predicative value in low prevalence populations and are not routinely used. This patient needs treatment with aciclovir now; the clinical presentation is highly suggestive of a primary episode of genital HSV and there is no need to wait for the result. As candida was detected, it is also reasonable to give treatment for this.

33156

Rate this question: ⚙️ ⭐️ ⭐️ ⭐️ ⭐️ ⭐️

Next Question

Previous Question	Tag Question
Feedback	End Session

Difficulty: Average

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	136
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Back to Filters

Question 151 of 199

A 25-year-old woman presents to A&E minors. She is complaining of increased urinary frequency and dysuria for the past 2 days. She feels slightly feverish but generally not too unwell. She has no other medical problems and takes no medications. She has no drug allergies. On examination she has a mild fever at 37.5°C, pulse 80/min, BP 135/75 mmHg

Physical examination is entirely normal, with no evidence of loin tenderness.

Urine dipstick reveals leucocytes 2+, nitrites +, blood +.

What is the next step?

- A

Send a midstream urine for microscopy and culture
- B

Prescribe 3 days' trimethoprim
- C

Prescribe 3 days' amoxicillin
- D

Prescribe 3 days' co-amoxiclav
- E

Admit for IV cefuroxime

33157

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 151 of 199

Physical examination is entirely normal, with no evidence of loin tenderness.



A	Send a midstream urine for microscopy and culture
B	Prescribe 3 days' trimethoprim
C	Prescribe 3 days' amoxicillin
D	Prescribe 3 days' co-amoxiclav
E	Admit for IV cefuroxime

Explanation

Based on the history and urine dipstick this is clearly an uncomplicated UTI in an otherwise healthy young woman. According to PRODIGY guidance issued by the Department of Health there is no indication for a urine culture in this situation. Trimethoprim is still recommended as a first-line treatment for uncomplicated UTI in primary care and 3 days is as effective as a longer course. Amoxicillin is unsuitable as up to 50% of urinary pathogens are resistant. Co-amoxiclav is a good second-line agent but is very broad spectrum and not suitable as a first-line therapy. There is no indication for IV therapy.

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Next Question

Previous Question

Tag Question

Feedback

End Session

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Question 152 of 199

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Question 152 of 199

The rest of the physical examination is normal.

Glucose	7.8 mmol/l
Hba1c	96 mmol/mol (11.0%) (13.66-50.82mmol/mol, 3.4-6.8%)
Hb	13.1 g/dl (13-18 g/dl)
Plt	$160 \times 10^9/l$ ($150-400 \times 10^9/l$)
WCC	$4.9 \times 10^9/l$ ($4-11 \times 10^9/l$)
Folate	normal
B12	normal
Treponemal EIA	+
TPPA	+
RPR	-



A	Yaws
B	Late latent syphilis
C	Secondary syphilis
D	Pinta
E	SLE

The most likely cause is that he had yaws in childhood. Yaws are caused by *Treponema pertenue* and is the most common endemic treponemal disease. This is very common in the Caribbean whilst pinta is found in Central and South America. They cause sores over the shins as he describes. Late latent syphilis would give the same serological picture, but in terms of probability, yaws is more likely. This is a difficult situation but one which is often seen in syphilis clinics. Although his positive syphilis serology is probably caused by yaws and his peripheral neuropathy is probably secondary to poorly controlled diabetes, neurosyphilis cannot yet be excluded in this patient. Therefore, following national BASHH (British Association Sexual Health and HIV infection) guidelines, he should be offered a lumbar puncture to look for a positive CSF RPR (or VDRL) and raise CSF white cell count.

Rate this question:

[Next Question](#)

Previous Question

Tag Question

Feedback

End Session

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Responses - % Correct:	0%

Question 153 of 199

He is not on any medication and has no drug allergies. He does not smoke or drink alcohol.

The rest of the examination is normal.

Hb	11.8 g/dl (13-18 g/dl)
WCC	$1.8 \times 10^9/l$ ($4-11 \times 10^9/l$)
Plts	$270 \times 10^9/l$ ($150-400 \times 10^9/l$)
Urea	6.0 mmol/l (2.5-7.5)
Creatinine	110 μ mol/l (60-110)
K ⁺	4.8 mmol/l (3.5-4.9)
Na ⁺	143 mmol/l (137-144)
CRP	105 mg/l
Bilirubin	13 μ mol/l (1-22)
ALT	45 U/l (5-35)
ALP	90 U/l (45-105)
Albumin	30 g/l (37-49)

A	Meningococcal meningitis
B	Cryptococcal meningitis
C	Cerebral toxoplasmosis
D	Middle meningeal artery thrombosis
E	Lyme disease

Submit

Skip Question

Back to Filters

Question 153 of 199

A patient presents to A&E complaining of a severe and worsening headache over the past week. The headache is present all the time and is associated with some nausea. He denies photophobia. He is a 26-year-old Nigerian and has lived in the UK for a year. He has no past medical history except for splenectomy following a car crash when he was 15 years old.

He is not on any medication and has no drug allergies. He does not smoke or drink alcohol.

On examination he is clearly in pain. He has a fever of 38°C, pulse 110/min, BP 130/70 mmHg. He has a thick white coating to his tongue and on questioning admits that his mouth has been rather sore. Neurological examination reveals no meningism, but there is a right-sided weakness, worse in the leg than the arm, with brisk reflexes on the right. He has a right homonymous hemianopia. It is impossible to get good views of the fundi.

The rest of the examination is normal.

Blood tests:

Hb	11.8 g/dl (13–18 g/dl)
WCC	1.8 × 10 ⁹ /l (4–11 × 10 ⁹ /l)
Plts	270 × 10 ⁹ /l (150–400 × 10 ⁹ /l)
Urea	6.0 mmol/l (2.5–7.5)
Creatinine	110 μmol/l (60–110)
K ⁺	4.8 mmol/l (3.5–4.9)
Na ⁺	143 mmol/l (137–144)
CRP	105 mg/l
Bilirubin	13 μmol/l (1–22)
ALT	45 U/l (5–35)
ALP	90 U/l (45–105)
Albumin	30 g/l (37–49)



What is the most likely diagnosis?

- A

Meningococcal meningitis
- B

Cryptococcal meningitis
- C

Cerebral toxoplasmosis
- D

Middle meningeal artery thrombosis
- E

Lyme disease

Explanation

There is strong evidence that this man is HIV-positive, with oral candida and a low lymphocyte count. Both A (especially post splenectomy) and B are also possible but would be unlikely to cause such focal neurology. A cerebrovascular event should not cause fever nor take a week to develop. Lyme disease is a possible cause of this picture but far less likely. This man needs an urgent CT head.

33159

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Responses Correct:	0
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Responses Total:	139
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Back to Filters

Question 154 of 199

An HIV-positive man presents to the walk-in clinic. He has a CD4 count of $120 \times 10^6/l$ (normal range 300-1400) but has been very reluctant to start antiretroviral therapy so far. He has not been taking his prophylactic co-trimoxazole either as he feels it makes him nauseous. He complains of a severe headache, getting worse over the last 2 weeks. He has also now developed some double vision. He feels nauseous.

On examination he has a low grade fever of 37.5°C and on neurological examination has evidence of a right-sided upper VIIth nerve palsy. The rest of the examination is normal. A CT brain is organised which reveals two large ring-enhancing lesions in the left frontal lobe. There is evidence of midline shift with some cerebral oedema.

Based on the likeliest diagnosis, what treatment should be started?

- | | |
|---|--|
| A | Sulfadiazine and pyrimethamine, folinic acid |
| B | Chemotherapy |
| C | IV amphotericin |
| D | IV aciclovir |
| E | IV ceftazidime |

33160

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Previous QuestionSkip Question

Calculator✔

Normal Values✔

Back to Filters

Question 154 of 199

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Based on the likeliest diagnosis, what treatment should be started?

A	Sulfadiazine and pyrimethamine, folinic acid
B	Chemotherapy
C	IV amphotericin
D	IV aciclovir
E	IV ceftazidime

Explanation

Sulfadiazine, pyrimethamine and folinic acid are the treatment for cerebral toxoplasmosis. The main differential diagnosis is of primary cerebral lymphoma for which chemotherapy would be required. Given the evidence of midline shift, dexamethasone is also likely to be required.

33160

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Back to Filters

Question 155 of 199

A man presents to the outpatient clinic. He has been diagnosed HIV-positive 2 weeks previously after a routine screen. He is now attending for his first appointment. He has been feeling well and has no symptoms. He has no other past medical history. Routine examination is normal and he has his routine blood tests done.

They show:

CD4	110 x 10 ⁶ /l
viral load (VL)	59,000 copies/ml
Cytomegalovirus CMV IgG	+ve
Toxoplasma IgG	+ve
Cryptococcal antigen	-ve
Hep A IgG	+ ve
Hep B S AB	+ ve (post vaccination)
Hep C IgG	-ve
Na ⁺	142 mmol/l
K ⁺	3.8 mmol/l
Urea	6.0 mmol/l
Creatinine	100 μmol/l
Bilirubin	12 μmol/l
ALP	100 U/l
AST	35 U/l
Albumin	38 g/l
Hb	12.1 g/dl
WCC	1.4 × 10 ⁹ /l
PLT	13× 10 ⁹ /l

He is commenced on prophylactic co-trimoxazole, which he tolerates well, and 3 weeks later is started on Highly Active Anti Retroviral Therapy (HAART). 3 weeks later he presents to A&E. He has been feeling increasingly unwell for the past 2 weeks. Initially he just felt extremely tired and exhausted but then he began to develop generalised abdominal pain. He has been vomiting frequently and having some diarrhoea. He feels quite dizzy and light headed.

Examination findings are as follows: pulse 120 beats/min; BP 100/50 mmHg; afebrile; oxygen saturations 99% on room air (RA). Cardiovascular, respiratory, neurological and abdominal examination normal.

Blood tests show:

Na ⁺	128 mmol/l
K ⁺	5.6 mmol/l
Urea	8.5 mmol/l
Creatinine	100 μmol/l
Bilirubin	30 μmol/l
ALP	112 U/l
AST	35 U/l
Albumin	38 g/l
Hb	12.1 g/dl
WCC	1.9 × 10 ⁹ /l
PLT	13 × 10 ⁹ /l
Glucose	3.0 mmol/l

What is the most useful bedside test to perform as a pointer to the underlying diagnosis?

- A

Urinalysis
- B

Postural blood pressures
- C

Exercise oxygen saturations
- D

ECG
- E

Blood pressure in each arm

33161

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Previous QuestionSkip Question

Calculator✔

Normal Values✔

Back to Filters

Question 155 of 199

A man presents to the outpatient clinic. He has been diagnosed HIV-positive 2 weeks previously after a routine screen. He is now attending for his first appointment. He has been feeling well and has no symptoms. He has no other past medical history. Routine examination is normal and he has his routine blood tests done.

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K ⁺	3.8 mmol/l
Urea	6.0 mmol/l
Creatinine	100 μ mol/l
Bilirubin	12 μ mol/l
ALP	100 U/l
AST	35 U/l
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PLT	13 × 10 ⁹ /l
Glucose	3.0 mmol/l



What is the most useful bedside test to perform as a pointer to the underlying diagnosis?

- A

Urinalysis
- B

Postural blood pressures
- C

Exercise oxygen saturations
- D

ECG
- E

Blood pressure in each arm

Explanation

This patient has Addison’s disease, with low BP, tachycardia, slight hypoglycaemia and low sodium. The most useful test will be lying and standing blood pressure which will probably reveal a marked drop on standing. This is probably secondary to CMV-adrenalitis, which has arisen as an immune reconstitution syndrome. The initial treatment will be IV hydrocortisone, oral medication currently being unsuitable in his case due to vomiting. If it is felt that CMV-adrenalitis is the cause, the patient will also be treated with ganciclovir. TB is the other organism most likely to cause Addison’s in immunocompromised patients.

33161

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Back to Filters

Question 156 of 199

A 32-year-old man presents to A&E. He has noticed that his face seems weak and his partner agrees. This problem has been developing over the last 2 days. He has not felt well for a while. For the last month he has been experiencing joint pain and stiffness, particularly affecting his elbows and knees. His GP has been investigating this and has referred him to the rheumatologist. 3 months ago he had a flu-like illness with a red rash, fever and malaise. His GP felt that this was likely to be ‘glandular fever’.

He has no other medical problems and takes no medication. He is homosexual with a regular partner but has not had unprotected anal sex for 5 years. He does have unprotected oral sex with his partner and other men but attends for regular sexual health checks. He does quite a lot of travelling and has been to Kenya trekking 6 months ago, Massachusetts to do a cross-country marathon 4 months ago and to Amsterdam for the weekend straight after that.

On examination he is afebrile, there are no skin rashes. His elbows and knees are clearly painful and stiff with slight limitation of range of movement but there is no evidence of active synovitis. On neurological examination he has bilateral lower VIIth nerve palsies. The rest of the neurological examination is entirely normal.

What is the most likely diagnosis?

- A

Secondary syphilis
- B

Leprosy
- C

Lyme disease
- D

Reiter’s syndrome
- E

Cerebral toxoplasmosis

33162

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 156 of 199

A 32-year-old man presents to A&E. He has noticed that his face seems weak and his partner agrees. This problem has been developing over the last 2 days. He has not felt well for a while. For the last month he has been experiencing joint pain and stiffness, particularly affecting his elbows and knees. His GP has been investigating this and has referred him to the rheumatologist. 3 months ago he had a flu-like illness with a red rash, fever and malaise. His GP felt that this was likely to be ‘glandular fever’.

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What is the most likely diagnosis?

- A

Secondary syphilis
- B

Leprosy
- C

Lyme disease
- D

Reiter’s syndrome
- E

Cerebral toxoplasmosis

Explanation

Approx 1 week after exposure (from a tick bite whilst walking in Massachusetts) the patient develops the rash of erythema chronicum migrans with fever, malaise and myalgia. Weeks or months later the arthritis and neurological complications develop. It is possible to catch syphilis through oral sex but the time course does not fit. The symptoms would be expected to all develop at once and cranial nerve lesions would be unusual as part of secondary syphilis, whilst these are classic for Lyme. Apart from in Lyme disease and Guillan-Barré, bilateral facial nerve palsies are very rare. There is no suggestion here of leprosy as the diagnosis, since there is no sensory involvement. Cerebral toxoplasmosis would cause upper not lower motor nerve lesions and this man is at low risk of HIV infection. This does not fit with Reiter’s as there is no suggestion of urethritis or conjunctivitis. The early use of antibiotics can prevent persistent, recurrent and refractory Lyme disease. Antibiotics shorten clinical course and progression.

33162

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Responses Incorrect:	142
Responses Total:	142
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Question 157 of 199

On examination the only finding is marked tenderness in the RUQ.
His blood tests are as follows:

Hb	12.7 g/dl
WCC	$9.9 \times 10^9/l$
lymphocytes	$3.6 \times 10^9/l$
neutrophils	$3.1 \times 10^9/l$
eosinophils	$3.1 \times 10^9/l$
PLT	$170 \times 10^9/l$
Urea	5.0 mmol/l
Creatinine	95 μ mol/l
Na ⁺	142 mmol/l
K ⁺	4.0 mmol/l
Bilirubin	89 μ mol/l
AST	60 U/l
ALP	430 U/l
Albumin	30 g/l



What is the most important investigation to arrange?

- | | |
|---|--|
| A | Blood cultures |
| B | Amoeba serology |
| C | Aspiration of the cyst under US guidance |
| D | Stool microscopy for ova cysts and parasites |
| E | CT abdomen |

Submit

Skip Question

Back to Filters

Question 157 of 199

A 50-year-old Italian man presents to the gastroenterology clinic. He has a 6-month history of worsening abdominal pain. Over the past month he has become noticeably jaundiced and has noticed dark urine and pale stools. He has also had two episodes in the past 2 weeks where he suddenly felt hot and dizzy. When this happened he noticed an itchy rash appear over all of his body, which only lasted for 24 hours.

He has a past history of angina and is awaiting an angiogram. He takes aspirin, simvastatin and isosorbide dinitrate. He has no drug allergies. He moved to the UK from Italy 20 years ago and has not left the UK in the past 6 years. He has retired.

On examination the only finding is marked tenderness in the RUQ.

His blood tests are as follows:

Hb	12.7 g/dl
WCC	9.9 × 10 ⁹ /l
lymphocytes	3.6 × 10 ⁹ /l
neutrophils	3.1 × 10 ⁹ /l
eosinophils	3.1 × 10 ⁹ /l
PLT	170 × 10 ⁹ /l
Urea	5.0 mmol/l
Creatinine	95 μmol/l
Na ⁺	142 mmol/l
K ⁺	4.0 mmol/l
Bilirubin	89 μmol/l
AST	60 U/l
ALP	430 U/l
Albumin	30 g/l

An abdominal US reveals a large 5-cm cyst within the liver that is pressing on the common bile duct.

What is the most important investigation to arrange?

- A

Blood cultures
- B

Amoeba serology
- C

Aspiration of the cyst under US guidance
- D

Stool microscopy for ova cysts and parasites
- E

CT abdomen

Explanation

- E

CT abdomen

The history is highly suggestive of hydatid cyst disease, which is due to infection with the helminth *Echinococcus granulosa*. The adult worm is found normally in the dog and sheep intestine and man is an accidental intermediate host. The infection is seen in Mediterranean areas, parts of East Africa, Australia and South America and the liver is the commonest organ involved. The cysts grow slowly, and a cyst is rarely diagnosed during childhood or adolescence unless the brain is affected. In the liver, the pressure effect of the cyst can produce symptoms of obstructive jaundice and abdominal pain. Minor leaks lead to increased pain and a mild allergic reaction characterised by flushing and urticaria. Major rupture can lead to a full-blown anaphylactic reaction in some cases.

CT scan has an accuracy of 98% and the sensitivity to demonstrate the daughter cysts. It is the best test for the differentiation of hydatid from amoebic and pyogenic cysts in the liver.

- A

Blood cultures

Blood cultures could be useful in investigation of pyogenic liver abscesses but are only positive in 30% of patients.

- B

Amoeba serology

Serology of amoeba is rarely available due to expenses and poor sensitivity.

- C

Aspiration of the cyst under US guidance

Aspiration may cause rupture of the cyst. Since the history is suggestive of hydatid disease, this could be very dangerous due to the risk of major rupture and anaphylaxis.

- D

Stool microscopy for ova cysts and parasites

If amoebic liver abscess was suspected; Latex agglutination assay is positive in more than 90% and stool microscopy may identify the organism (but unlikely with no symptoms of dysentery). Amoebic liver abscess is unlikely in this patient who has not been abroad in 6 years, and the history of urticaria and flushing combined with an eosinophilia are highly suggestive of hydatid disease.

33163

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Next Question

- Previous Question

Tag Question
- Feedback

End Session

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Responses Total:	143
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Back to Filters

Question 158 of 199

A 20-year-old man presents complaining of diarrhoea for the past two days. It is watery and he has opened his bowels three times already today. He feels concerned as he thinks there was a small amount of blood mixed in with the stool on the most recent occasion. He doesn't feel too unwell and has been drinking plenty of fluids.

He has not eaten anything unusual or been travelling abroad in the last six months. He had an infected boil on his back for which he received flucloxicillin two weeks ago. No one else in the household feels unwell. He has no past medical history and takes no medications. BP is 105/80 mmHg with a postural drop of 20 mmHg on standing.

Select the most appropriate next management step from the list below:

- A

Oral antibiotics
- B

IV antibiotics
- C

Loperamide
- D

Sigmoidoscopy
- E

Oral rehydration salts

33164

Submit

Previous QuestionSkip Question

Calculator✔

Normal Values✔

Back to Filters

Question 158 of 199

A 20-year-old man presents complaining of diarrhoea for the past two days. It is watery and he has opened his bowels three times already today. He feels concerned as he thinks there was a small amount of blood mixed in with the stool on the most recent occasion. He doesn't feel too unwell and has been drinking plenty of fluids.

He has not eaten anything unusual or been travelling abroad in the last six months. He had an infected boil on his back for which he received flucloxicillin two weeks ago. No one else in the household feels unwell. He has no past medical history and takes no medications. BP is 105/80 mmHg with a postural drop of 20 mmHg on standing.

Select the most appropriate next management step from the list below:

- A

Oral antibiotics
- B

IV antibiotics
- C

Loperamide
- D

Sigmoidoscopy
- E

Oral rehydration salts

Explanation ⚙

- E

Oral rehydration salts

NICE suggest that acute diarrhoea should be assessed for cause and the severity of dehydration should be established. The Table below is based on NICE guidelines to help divide the different features.

Mild dehydration	Moderate dehydration	Severe dehydration
Lassitude	Apathy/tiredness	Profound apathy
Anorexia/nausea	Dizziness	Weakness
Light-headedness	Muscle cramps	Confusion
Postural hypotension	Pinched face	Shock
	Dry tongue or sunken eyes	Tachycarida
	Reduced skin elasticity	Peripheral vasoconstriction
	Postural hypotension	Hypotension
	Tachycardia	Oliguria or anuria
	Oliguria	

As his only feature dehydration is postural hypotension he can be managed for mild dehydration with oral rehydration.

- A

Oral antibiotics

According to guidance, antibiotics should be reserved for when a patient has a positive stool culture or is extremely unwell. This patient is very stable. He has noticed a small amount of blood on passing stool so it is definitely worth sending a stool culture. His short course of flucloxicillin is very unlikely to have precipitated Clostridium difficile infection in an otherwise healthy young man.

- B

IV antibiotics

As with the previous option there is no indication to treat with antibiotics, IV or oral, unless there is a specific pathogen identified or there is evidence of severe infection. This patient is well and no samples suggesting infection have yet been returned.

- C

Loperamide

Whilst infection has not been proven, it is suspected, especially as there is an element of PR bleeding. Loperamide should be avoided if infective diarrhoea is suspected.

- D

Sigmoidoscopy

Endoscopic examination would be necessary if inflammatory bowel disease was suspected to be the underlying cause. There is not very much in the history or examination to support such a suspicion; absence of fever, chronic history, abdominal pain and systemic features. Should such features develop or his diarrhoea not settle then this could be a reasonable choice.

33164

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Back to Filters

Question 159 of 199

You see a patient in the HIV outpatients’ clinic. He was diagnosed HIV-positive 6 weeks ago and was found to have a CD4 count of $12 \times 10^6/l$. He was commenced on prophylactic co-trimoxazole but developed a rash and derangement of his liver function tests and it was stopped.

He feels well now. He is planning to go mountain trekking in the Himalayas for the next three weeks. You try and dissuade him on the basis that he needs to be more immunocompetent before he goes but he will not be moved, as the trip was organised months ago and is for charity.

The patient wants to reduce his risk of catching a range of infections and would like some information about vaccinations. He wants to know what vaccinations he should have, both routine and for travelling purposes.

Which of the following groups of vaccines would you recommend as being safe in HIV-positive patients?

- | | |
|---|---|
| A | Hep A, Hep B, mumps |
| B | Hep A, Hep B, BCG, flu jab |
| C | Hep A, Hep B, flu jab, pneumococcal vaccine |
| D | BCG, Ty21a typhoid, pneumococcal vaccine |
| E | Flu jab, pneumococcal vaccine, typhoid, Hep B |

33165

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Previous QuestionSkip Question

Calculator✔

Normal Values✔

Question 159 of 199

He feels well now. He is planning to go mountain trekking in the Himalayas for the next three weeks. You try and dissuade him on the basis that he needs to be more immunocompetent before he goes but he will not be moved, as the trip was organised months ago and is for charity.

Which of the following groups of vaccines would you recommend as being safe in HIV-positive patients?

A	Hep A, Hep B, mumps
B	Hep A, Hep B, BCG, flu jab
C	Hep A, Hep B, flu jab, pneumococcal vaccine
D	BCG, Ty21a typhoid, pneumococcal vaccine
E	Flu jab, pneumococcal vaccine, typhoid, Hep B

C	Hep A, Hep B, flu jab, pneumococcal vaccine
---	---

Most clinics will routinely vaccinate all HIV-positive patients against hepatitis A and B. Every traveller with HIV should be sure they are vaccinated against hepatitis A and B.

Pneumovax and flu vaccine are recommended

Countries have different vaccination requirements for entry. If polio vaccine is required, it should be the inactivated version, not the live oral version.

A	Hep A, Hep B, mumps
---	---------------------

Mumps is part of the MMR vaccine and is a live attenuated vaccine. As the patient is immunocompromised with a low CD4 count this is not recommended.

B	Hep A, Hep B, BCG, flu jab
---	----------------------------

BCG is a live vaccine and is therefore contraindicated.

D BCG, Ty21a typhoid, pneumococcal vaccine

BCG is a live vaccine and is therefore contraindicated.

E	Flu jab, pneumococcal vaccine, typhoid, Hep B
---	---

Typhoid is a live vaccine and is therefore contraindicated

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Previous Question	Tag Question
Feedback	End Session

Difficulty: Average

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Session Progress

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Back to Filters

Question 160 of 199

A 23-year-old Burmese man presents to gastroenterology clinic. He has lived in the UK for 8 months and works in a nightclub. He is complaining of severe persistent diarrhoea for the past one month, ever since he took a trip back home to Burma where is family live in a small village. He has lost 15 kg; he denies fever or night sweats. The diarrhoea is watery with no blood or mucus. There is some associated abdominal discomfort and he feels nauseated but has not vomited. He has noticed a rash over his trunk which seems to be more obvious at some times than others.

On examination he is slim but looks well, pulse 90 beats/min; BP 135/72 mmHg; afebrile. Abdominal examination is unremarkable with no organomegaly; the rest of the clinical examination is unremarkable.

The GP has performed some tests:

FBC	
Hb	12.2 g/dl
MCV	75 fl
WCC	$6.5 \times 10^9/l$
eosinophils	$2.5 \times 10^9/l$
lymphocytes	$1.0 \times 10^9/l$
neutrophils	$2.6 \times 10^9/l$

Renal function:	
Na ⁺	134 mmol/l
K ⁺	3.2 mmol/l
Urea	4.1 mmol/l
Creatinine	80 μmol/l

LFTs	
Bilirubin	22 μmol/l
ALT	32 U/l
ALP	101 U/l
Albumin	30 g/l
Amylase	95 U/l
CRP	35 U/l

Stool microscopy & culture - No growth.

The GP had previously prescribed a week’s course of ciprofloxacin which has made very little difference to the patient’s symptoms. On further testing he is found to be both HIV positive and have positive serology for strongyloides.

Which of the following is the most appropriate first treatment?

- A

Metronidazole
- B

Albendazole
- C

Ivermectin
- D

Antiretroviral therapy
- E

IV gentamicin

33166

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 160 of 199

5	DO	
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LFTs	
Bilirubin	22 μ mol/l
ALT	32 U/l
ALP	101 U/l
Albumin	30 g/l
Amylase	95 U/l
CRP	35 U/l

- ### Explanation



- Strongyloides is a nematode endemic in the sub-tropics. Transmission occurs via direct skin exposure followed by cutaneous larva migrans seen as migrating urticarial on the legs and trunk. It can cause enteritis, malabsorption and pneumonitis. In the wake of the nematodes, bacteria can follow which can cause septicaemia and meningitis. Treatment is usually with ivermectin for 48 hours.

- these infections do not cause this level of infection.

- strongyloides hyperinfestation. Whilst there is positive HIV serology, there is no CD4 count or AIDS-defining illnesses at this point and therefore there is no clear diagnosis of AIDS.

- Whilst the patient will need to be started on treatment for his HIV at some point, treating his current strongyloides infection would be appropriate.

- This treatment is not used in the treatment of nematodes and is more suited to bacterial infections.

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[Previous Question](#)

Tag Question

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Responses Incorrect:	146
Responses Total:	146
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Question 161 of 199

Blood tests from last night are as follows:

Hb	16.1 g/l
WCC	$52 \times 10^9/l$
PLT	$220 \times 10^9/l$
Urea	9.0 mmol/l
Creatinine	110 μ mol/l
Na ⁺	136 mmol/l
K ⁺	3.4 mmol/l
Bilirubin	18 μ mol/l
ALT	47 U/l
ALP	87 U/l
Albumin	28 g/l

A	Send stool for C. difficile toxin a
B	Send stool for C. difficile toxin b
C	Commence oral ciprofloxacin
D	Commence oral metronidazole
E	Abdominal X- ray

Submit

Skip Question

Question 161 of 199

Blood tests from last night are as follows:

You stop the co-amoxiclav. Of the following, which is the most urgent next step?

- Explanation

A Send stool for *C. difficile* toxin a

B	Send stool for C. difficile toxin b
---	-------------------------------------

C	Commence oral ciprofloxacin
---	-----------------------------

E	Abdominal X- ray
---	------------------

— — — — —

— 10 —

Peer Responses %

Session Progress

Back to Filters

Question 162 of 199

A man presents to the genitourinary medicine clinic. He is a 22-year-old American man and has never attended your clinic before. He is a man who has sex with men and feels that he needs a full sexual health screen. He has had six partners in his life and has had unprotected anal sex with three of them.

Currently he has no symptoms and feels well. He agrees to an HIV test and tests for Chlamydia and gonorrhoea. You ask him about hepatitis vaccinations and he is not sure. He thinks he may have been vaccinated against something whilst in America but knows no details.

You request hepatitis serology is reported asHep A IgG + ve, Hep B core ag -ve, Hep B s ag -ve, Hep B core ab + ve (titre 120).

What is the most appropriate course of action?

- A

Offer hepatitis B vaccination
- B

Offer hepatitis A vaccination
- C

Start antiviral treatment
- D

Offer no vaccination or treatment
- E

Repeat tests in six weeks

33168

Submit

Previous QuestionSkip Question

Calculator✔

Normal Values✔

Back to Filters

Question 162 of 199

A man presents to the genitourinary medicine clinic. He is a 22-year-old American man and has never attended your clinic before. He is a man who has sex with men and feels that he needs a full sexual health screen. He has had six partners in his life and has had unprotected anal sex with three of them.

Currently he has no symptoms and feels well. He agrees to an HIV test and tests for Chlamydia and gonorrhoea. You ask him about hepatitis vaccinations and he is not sure. He thinks he may have been vaccinated against something whilst in America but knows no details.

You request hepatitis serology is reported asHep A IgG + ve, Hep B core ag -ve, Hep B s ag -ve, Hep B core ab + ve (titre 120).

What is the most appropriate course of action?



- A

Offer hepatitis B vaccination
- B

Offer hepatitis A vaccination
- C

Start antiviral treatment
- D

Offer no vaccination or treatment
- E

Repeat tests in six weeks

Explanation



- D

Offer no vaccination or treatment

This question is about interpreting hepatitis serology. Hepatitis IgA is detectable for life and is no marker of acute infection. HBsAg is present for 1-6 months in acute infection. HBeAg persists for up to three months and signifies highly infectious patients. Antibodies against HBcAg imply past infection, whilst antibodies against HBsAg only implies vaccination. The presence of Hep B core ab implies previous infection and immunity and therefore no vaccination should be offered.

- A

Offer hepatitis B vaccination

The patient is immune as he has been previously infected with hepatitis B and has already established immunity.

- B

Offer hepatitis A vaccination

The presence of Hep A IgG without acute hepatitis implies previous infection and established immunity and therefore vaccination is not necessary.

- C

Start antiviral treatment

There is no evidence of acute infection and the patient is well. No active treatment is needed.

- E

Repeat tests in six weeks

The serology is unlikely to change and therefore would not need retesting unless the patient became unwell with hepatitis.

33168

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Session Progress

Responses Correct:	0
Responses Incorrect:	148
Responses Total:	148
Responses - % Correct:	0%

Back to Filters

Question 163 of 199

A 40-year-old Dutch man presents to A&E. He is complaining of worsening breathlessness. It has been progressive for the last month and he is also experiencing a persistent dry cough. His only past medical history is of infective endocarditis seven years ago which developed as a consequence of injecting drugs intravenously. He admits that he last injected heroin ‘the day before yesterday’ but is unsure how much. He is on no medication and has no drug allergies. He has been staying at a homeless persons’ hostel.

On examination he has a temperature of 39°C. pulse 120 beats/min, BP 140/70 mmHg. Oxygen saturations 93% RA (on room air); RR 26/min. On exertion he desaturates to 82% breathing room air. He has 2 × 2 cm lymph nodes in his right groin but otherwise no lymphadenopathy. Chest is clear with no evidence of consolidation. He has 2 cm hepatomegaly and a spleen tip is palpable. Cardiovascular examination reveals a pansystolic murmur at the lower left sternal edge.

A chest X-ray reveals diffuse shadowing throughout both lung fields. An arterial blood gas is as follows; p(O₂) 10.0 kPa, p(CO₂) 3.2 kPa, Sats 91% , Bic 19 mmol/l. Routine blood tests and blood cultures are taken.

What is the immediate management?

- A

IV naloxone
- B

IV co-trimoxazole
- C

IV benzylpenicillin and gentamicin
- D

Isoniazid, rifampicin, ethambutol, pyrazinamide
- E

Nebulised salbutamol

33169

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 163 of 199

A chest X-ray reveals diffuse shadowing throughout both lung fields. An arterial blood gas is as follows; $p(\text{O}_2)$ 10.0 kPa, $p(\text{CO}_2)$ 3.2 kPa, Sats 91% , Bic 19 mmol/l. Routine blood tests and blood cultures are taken.

11

A	IV naloxone
B	IV co-trimoxazole
C	IV benzylpenicillin and gentamicin
D	Isoniazid, rifampicin, ethambutol, pyrazinamide
E	Nebulised salbutamol

B	IV co-trimoxazole
---	-------------------

Pneumocystis jirovecii, previously known as Pneumocystis carinii, is the organism responsible for Pneumocystis carinii pneumonia (PCP); the most common opportunistic infection in HIV-infected patients. A bronchoscopy will help confirm whether this is Pneumocystis jirovecii or TB, although at the moment the clinical suggestion is more likely Pneumocystis jirovecii pneumonia.

A	IV naloxone
---	-------------

There is no evidence of opiate toxicity as he is tachypnoeic, not showing respiratory depression, and there is no mention of pin-point pupils.

C	IV benzylpenicillin and gentamicin
---	------------------------------------

This could be a considered management plan if the primary diagnosis was infective endocarditis. However, the murmur is most likely to be chronic following the first episode of endocarditis and there are several features, such as the severe hypoxia and lung shadowing that infective endocarditis cannot explain.

D Isoniazid, rifampicin, ethambutol, pyrazinamide

This would be the treatment for TB. TB is less likely than PCP because of the diffuse shadowing on the chest X-ray, severe hypoxia worsening on exertion and acute onset of illness.

E	Nebulised salbutamol
---	----------------------

This would be the treatment for acute obstructive airway disease such as exacerbation of asthma or COPD. The lack of wheeze on auscultation make these unlikely diagnoses.

100

Previous Question	Tag Question
Feedback	End Session

DIFFERENTIAL

Row	Row	Row	%
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Session Progress	
Responses Correct:	0
Responses Incorrect:	149
Responses Total:	149

Back to Filters

Question 164 of 199

A 26-year-old woman who is 4 weeks post partum comes to the Emergency department. She had an uneventful pregnancy and spontaneous vaginal delivery requiring episiotomy. She presents now feeling extremely ill, with a purpuric rash and a fever. On examination she has a pyrexia of 38.5°C, a BP of 95/60 mmHg, and a pulse of 105/min regular. She has lower abdominal tenderness on palpation and you notice erythema around her episiotomy site. She is wearing a pad and you notice some foul smelling blood stained / yellow discharge on the pad.

Investigations:

Hb	11.1 g/dl
WCC	13.2 x10 ⁹ /l
PLT	132 x10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	5.2 mmol/l
Creatinine	130 μmol/l

Which of the following is the most useful investigation?

- A

Ultrasound scan abdomen
- B

Blood cultures
- C

High vaginal swab
- D

Urine culture
- E

Wound swab

33170

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 164 of 199

Investigations:

Hb	11.1 g/dl
WCC	13.2 x10 ⁹ /l
PLT	132 x10 ⁹ /l
Na ⁺	139 mmol/l
K ⁺	5.2 mmol/l
Creatinine	130 μmol/l

3

- | | |
|---|-------------------------|
| A | Ultrasound scan abdomen |
| B | Blood cultures |
| C | High vaginal swab |
| D | Urine culture |
| E | Wound swab |

- | | |
|---|-------------------|
| C | High vaginal swab |
|---|-------------------|

A Ultrasound scan abdomen

- | | |
|---|----------------|
| B | Blood cultures |
|---|----------------|

D	Urine culture
---	---------------

- This is unlikely to be a urine infection as there is a clear gynaecological source of infection and urine testing may be misleading as samples can easily be contaminated

The site of episiotomy is likely to be contaminated with dermal flora and therefore may not be as useful as a high vaginal swab

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[Previous Question](#)

Tag Question

Feedback

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Responses Total:	150
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Back to Filters

Question 165 of 199

A 29-year-old lady is referred by her general practitioner (GP) to the medical on-call team. She gives a three day history of frontal headaches and backache. She was seen two days previously and given a course of amoxicillin for a presumed chest infection. She is now complaining of anorexia and has vomited twice. In her past medical history she has had a right cerebello-pontine angle tumour removed a year ago. Six months ago a ventriculoperitoneal shunt was inserted for hydrocephalus.

On examination her temperature is 38°C. Fundoscopy is normal. Pupils are reactive and equal to light. There is a right lower motor neurone VII nerve palsy. Kernig’s sign is positive. She doesn’t complain of photophobia or neck stiffness. The rest of the physical examination is unremarkable.

Which investigation is the most useful next step?

- A

Magnetic resonance image (MRI) of the brain
- B

Computerised tomography (CT) of the brain
- C

Blood cultures
- D

Chest X-ray
- E

Erythrocyte sedimentation rate (ESR) and C-reactive protein level

33171

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 165 of 199

A 29-year-old lady is referred by her general practitioner (GP) to the medical on-call team. She gives a three day history of frontal headaches and backache. She was seen two days previously and given a course of amoxicillin for a presumed chest infection. She is now complaining of anorexia and has vomited twice. In her past medical history she has had a right cerebello-pontine angle tumour removed a year ago. Six months ago a ventriculoperitoneal shunt was inserted for hydrocephalus.

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Which investigation is the most useful next step?



- A

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- B

Computerised tomography (CT) of the brain
- C

Blood cultures
- D

Chest X-ray
- E

Erythrocyte sedimentation rate (ESR) and C-reactive protein level

Explanation



- A

Magnetic resonance image (MRI) of the brain

In a patient who has had a neurological procedure and has a ventriculo-peritoneal shunt in situ, the diagnosis of bacterial meningitis is the most likely possibility. Obstruction of the shunt also needs to be excluded by magnetic resonance imaging (MRI) scan. The histology of the original tumour is unknown and recurrence of tumour with malignant meningitis is also a differential to be considered. As the patient has had antibiotics for a few days, the likely diagnosis is partially treated meningitis. Cerebrospinal fluid (CSF) Gram stain is therefore unlikely to reveal any organisms; even so a lumbar puncture is the next logical step after imaging.

Ultimate eradication of the infection would involve removal and replacement of the shunt

- B

Computerised tomography (CT) of the brain

CT brain scan might show hydrocephalus but provides much poorer views of the posterior fossa than MRI, making MRI the clear preference in this case

- C

Blood cultures

Whilst cultures should be taken as the patient is febrile, it is less likely to provide useful information especially since the patient has already been taking antibiotics, lowering the yield further.

- D

Chest X-ray

Whilst a chest X-ray should be done, it is not the most important investigation as the source of infection is unlikely to be from her lungs. The patient has no respiratory symptoms or signs but does have evidence of focal neurology indicating an infection of the central nervous system.

- E

Erythrocyte sedimentation rate (ESR) and C-reactive protein level

Testing for the above inflammatory markers is unlikely to help in early stages as they are very non-specific. However, inflammatory markers should be requested to help monitor response to antibiotic treatment.

33171

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Next Question

Previous Question

Feedback

Tag Question

End Session

Difficulty: Average

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Session Progress

Responses Correct:	0
Responses Incorrect:	151
Responses Total:	151
Responses - % Correct:	0%

Question 166 of 199

On examination she is thin. Her temperature is 38.7°C. She has cervical lymphadenopathy. Her blood pressure is 110/80 mm/Hg; pulse 106/min regular. Heart sounds are normal with no murmurs. Auscultation of the chest is unremarkable.

Investigations are as follows:

Three days later while in hospital she develops painful wrists and pain on neck movement. Cardiovascular examination reveals a new friction rub but no evidence of cardiac failure.



Submit

Skip Question

Question 166 of 199

11b

friction rub but no evidence of cardiac failure.

Which diagnosis should be considered?

C	Juvenile chronic arthritis
---	----------------------------

The initial presentation with fever, pain and swelling of the left knee

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Back to Filters

Question 167 of 199

A 40-year-old builder presents with a five-hour history of increasingly severe headache and myalgia. Two weeks ago he was seen in the Emergency Department following a fall from the scaffolding of a building on which he was working. At that time he had a skull X-ray that was reported as being normal. As he had no specific symptoms or signs at that time he was not admitted. He smokes 20 cigarettes a day and drinks 21 units of alcohol a week. He has no other past medical history.

On examination he looks unwell. He is wearing his sunglasses. His temperature is 38°C. His blood pressure is 130/85 mmHg, pulse 88 beats/minute, oxygen saturation (*Sp*(O₂)) is 98% on air. He appears to have mild neck stiffness on examination. He is orientated in time, place and person but seems alternately sleepy and slightly aggressive towards staff. GCS is graded as 14/15 by the examining doctor. Blood cultures have been taken and a CT and lumbar puncture are arranged.

Which other step should be taken in the immediate management of this gentleman?

- | | |
|---|-------------------------|
| A | IV ceftriaxone |
| B | IV dexamethasone |
| C | IV mannitol |
| D | Antituberculous therapy |
| E | IV aciclover |

33173

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 167 of 199

temperature is 38°C. His blood pressure is 130/85 mmHg, pulse 88 beats/minute, oxygen saturation ($Sp(O_2)$) is 98% on air. He appears to have mild neck stiffness on examination. He is orientated in time, place and person but seems alternately sleepy and slightly aggressive towards staff. GCS is graded as 14/15 by the examining doctor. Blood cultures have been taken and a CT and lumbar puncture are arranged.

Which other step should be taken in the immediate management of this patient?

- | | |
|---|--------------|
| E | IV aciclovir |
|---|--------------|

- A IV ceftriaxone

In general, CSF examination allowing confirmation of the diagnosis and identification of the organism is preferable prior to starting antibiotics. In most cases it is preferable to perform CT first, and this is absolutely required in the context of reduced conscious level, history of head injury or presence of focal neurological signs. However, in a very unwell patient with a typical clinical picture of bacterial meningitis, for whom waiting for such investigations would risk undue delay in starting treatment, antibiotics may be commenced simply after blood cultures and CT/LP performed afterwards. Starting antibiotics, however, usually alters the CSF obtained and the likelihood of identifying an organism becomes less the longer the delay after the first dose of antibiotics.

C	IV mannitol
---	-------------

- c. TV transmitter

It is a treatment option for cerebral oedema. However, the high temperature suggests an infective aetiology to this patient's confusion.

- D Antituberculous therapy

TB can cause meningitis which can be identified from CSF results. However, this patient has no described exposure to anyone with TB nor is there any mention of travel to TB endemic countries. Also, the acute onset makes this less likely.

- E IV aciclovir

Aciclovir is treatment for viral meningitis and encephalitis. Viral infection is possible but would be unrelated to trauma, making a bacterial infection more likely.

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[illegible]

Responses Incorrect:	153
Responses Total:	153
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Back to Filters

Question 168 of 199

A 49-year-old gentleman has been having peritoneal dialysis for the last six months while he waits for a renal transplant. He has diabetic renal disease. His current medications include insulin, ramipril, aspirin and pravastatin. He is a non-smoker and drinks alcohol socially. He lives with his wife in a bungalow.

He presents with a 2-day history of abdominal pain and fever. The pain is localised to the site of the catheter. He tells you that the dialysis fluid is cloudy.

On abdominal examination there is mild tenderness at the site of the catheter entrance. There are no masses palpable. There is no rebound tenderness or guarding. Bowel sounds are normal. Abdominal ultrasound scan shows no abnormalities.

Which of the following antibiotic regimes should be prescribed for this gentleman?

- A

IV co-amoxiclav and IV gentamicin
- B

IV imipinem and oral ciprofloxacin
- C

IV tazocin and oral vancomycin
- D

Intraperitoneal vancomycin and oral ciprofloxacin
- E

IV cefuroxime and oral vancomycin

33174

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 168 of 199

A 49-year-old gentleman has been having peritoneal dialysis for the last six months while he waits for a renal transplant. He has diabetic renal disease. His current medications include insulin, ramipril, aspirin and pravastatin. He is a non-smoker and drinks alcohol socially. He lives with his wife in a bungalow.

He presents with a 2-day history of abdominal pain and fever. The pain is localised to the site of the catheter. He tells you that the dialysis fluid is cloudy.

On abdominal examination there is mild tenderness at the site of the catheter entrance. There are no masses palpable. There is no rebound tenderness or guarding. Bowel sounds are normal. Abdominal ultrasound scan shows no abnormalities.

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- A

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- B

IV imipinem and oral ciprofloxacin
- C

IV tazocin and oral vancomycin
- D

Intraperitoneal vancomycin and oral ciprofloxacin
- E

IV cefuroxime and oral vancomycin

Explanation ⚙

D

Intraperitoneal vancomycin and oral ciprofloxacin

This gentleman has peritonitis, which is dialysis related. It is very common. It is important that there is adequate cover for both *Staphylococcus aureus* and Enterobacteriaceae. For peritonitis secondary to perforation, cefuroxime and metronidazole is adequate cover. In dialysis-related peritonitis, however, intraperitoneal vancomycin is necessary in moderate illness. Intravenous vancomycin would be appropriate for more severe illness. Oral ciprofloxacin is added to further broaden coverage.

A

IV co-amoxiclav and IV gentamicin

These could be the antibiotics used for pyelonephritis, which would be suggested by high fevers, flank pain and urinary symptoms.

B

IV imipinem and oral ciprofloxacin

This combination is effective against severe *Pseudomonas* infections.

C

IV tazocin and oral vancomycin

Oral vancomycin is only effective against *Cl. difficile* as it is not absorbed and therefore only works locally. It would not help against peritoneal infection. Tazocin, or piperillin with tazobactam, would provide broad-spectrum antimicrobial cover but the patient would be more suited for oral therapy.

E

IV cefuroxime and oral vancomycin

Again, oral vancomycin is not useful for peritoneal infection. Cefuroxime is a second-generation cephalosporin that crosses the blood-brain barrier, making it a very good antibiotic for meningitis.

33174

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Session Progress

Responses Correct:	0
Responses Incorrect:	154
Responses Total:	154
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Back to Filters

Question 169 of 199

A 24-year-old single woman presents with a second episode of left iliac fossa pain in the past four months. Additionally, she has noticed inter-menstrual bleeding and has suffered an intermittent mucopurulent cervical discharge, although there are no external lesions. On examination she has lower abdominal pain, worse on the left-hand side. The abdomen is soft and there is no rebound tenderness. Urine testing is negative, pregnancy test is negative.

Given the likely diagnosis, which of the following interventions is the most appropriate in this case?

- A

Chlamydial nucleic acid amplification testing
- B

Penicillin V 500 mg po qds
- C

Aciclovir po
- D

Admit for surgical observation
- E

Arrange abdominal ultrasound

33175

Submit

Previous Question

Skip Question

Calculator

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Normal Values

✔

Question 169 of 199

Given the likely diagnosis, which of the following interventions is the most appropriate in this case?

-

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Question 170 of 199

Investigations:

Which one of the following would be the most appropriate initial intervention in this man?

Skip Question

Question 170 of 199

Investigations:

WCC	Low
Na ⁺	129 mmol/l
ALT	150 U/l

al

- | | |
|---|-------------------------------|
| A | Oral quinine |
| B | IV quinine |
| C | A thick and thin film |
| D | Paracetamol |
| E | IV broad-spectrum antibiotics |

- | | |
|---|-------------|
| D | Paracetamol |
|---|-------------|

A	Oral quinine
---	--------------

- | | |
|---|------------|
| B | IV quinine |
|---|------------|

IV quinine is incorrect as it is a treatment option for severe malaria.

- C A thick and thin film

and the species involved.

- | | |
|---|-------------------------------|
| E | IV broad-spectrum antibiotics |
|---|-------------------------------|

in this patient had signs of sepsis or meningitis this would be an appropriate answer, but there is no evidence of this.

Next Question

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End Session

Difficulty: Average

Peer Responses %

Responses Correct:	0
Responses Incorrect:	156
Responses Total:	156
Responses - % Correct:	0%

Back to Filters

Question 171 of 199

A 24-year-old man from central Africa presents to his brother’s general practitioner while visiting from overseas. He complains of painful groin lymphadenopathy and has a large hydrocoele. In addition there are changes consistent with severe chronic lymphoedema affecting both lower limbs. Past medical history of note includes epilepsy for which he takes carbamazepine. He also suffers from indigestion. Elephantiasis is suspected as the underlying reason for his leg swelling. You commence albendazole.

Which of the following other interventions is most appropriate in this case?

☰

- | | |
|---|---|
| A | Sodium stibogluconate intramuscular (IM) |
| B | Paromomycin IM |
| C | Substitute carbamazepine with another anti-epileptic medication |
| D | Surgical drainage of lymph nodes |
| E | Immobilise the worst affected limb where possible |

33177

Submit

Previous QuestionSkip Question

Calculator✔

Normal Values✔

Question 171 of 199

Which of the following other interventions is most appropriate in this case?

- _____

- A Sodium stibogluconate intramuscular (IM)

Sodium stibogluconate is used as treatment for leishmaniasis and is of therefore little use in this case. *Leishmania* are protozoa spread by sandflies in Africa, Asia, India, the Middle East, the Mediterranean and Latin America, causing granulomata. Cutaneous leishmaniasis lesions develop at the site of the bite, starting as an itchy papule which crusts to form an ulcer healing over 2-15 months. Visceral leishmaniasis, also known as kala-azar, has an incubation period of months to years. It spreads to the lymphatic system and multiplies in macrophages, presenting with dry, warty, hyper-pigmented lesions whilst the patient complains of fever, burning feet, arthralgia, cough and epistaxis. Splenomegaly occurs in 96% and hepatomegaly in 63%. Diagnosis is with microscopy of lymph nodes, spleen or bone marrow, or antibody detection. Treatment is with amphotericin, but sodium stibogluconate can also be used

- B Paromomycin IM

Paromomycin is an antibiotic used to amoebiasis, giardiasis, leishmaniasis and tapeworm infections.

- D Surgical drainage of lymph nodes

The swelling is likely to respond to medical management as the treatment is effective, and therefore there is no need for surgery.

- E Immobilise the worst affected limb where possible

Immobilisation is likely to make symptoms worse, as lymphatics would collect in the limb and accumulate to cause greater swelling

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Feedback

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Session Progress

Responses Correct:	0
Responses Incorrect:	157
Responses Total:	157
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Back to Filters

Question 172 of 199

A 22-year-old student teacher presents to the emergency general practitioner with severe unremitting vomiting that has lasted for the past 13 h. There is associated fever, headache, diarrhoea and myalgia. He is unable even to keep water down. History of note is that six members of his class were absent today due to gastroenteritis, and it is currently November. Both the diarrhoea and vomiting were profuse and watery, with no sign of blood.

Which one of the following is the most likely cause for this presentation?



- | | |
|---|----------------------------------|
| A | <i>Campylobacter</i> infection |
| B | <i>Salmonella</i> infection |
| C | Norovirus |
| D | <i>Cryptosporidium</i> infection |
| E | <i>Shigella</i> infection |

33178

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Back to Filters

Question 172 of 199

A 22-year-old student teacher presents to the emergency general practitioner with severe unremitting vomiting that has lasted for the past 13 h. There is associated fever, headache, diarrhoea and myalgia. He is unable even to keep water down. History of note is that six members of his class were absent today due to gastroenteritis, and it is currently November. Both the diarrhoea and vomiting were profuse and watery, with no sign of blood.

Which one of the following is the most likely cause for this presentation?



- A

Campylobacter infection
- B

Salmonella infection
- C

Norovirus
- D

Cryptosporidium infection
- E

Shigella infection

Explanation



- C

Norovirus

The rapid presentation, coupled with a number of virtually simultaneous cases in his class of students, suggests a viral aetiology in this case. Norovirus belongs to the Calicivirus family, members of which may be responsible for a number of outbreaks of viral gastroenteritis, often during the winter months. Rotavirus is a member of the Reoviridae family and causes diarrhoea that may be dramatic in onset. Intravenous fluid replacement is rarely required in adults presenting with these infections, and the majority can be managed as outpatients with oral rehydration therapy.

- A

Campylobacter infection

Campylobacter gastroenteritis occurs following ingestion of contaminated milk, poultry or water. Following an incubation period of 2-5 days, there is bloody diarrhoea, abdominal pain, fever and sometimes peritonism. The absence of the above symptoms and rapid onset makes this an unlikely diagnosis.

- B

Salmonella infection

Salmonella gastroenteritis occurs following ingestion of contaminated poultry or eggs. Eggs are routinely screened in the UK, making this unusual infection. Infection occurs 12-48 h following exposure and presents with diarrhoea, vomiting, abdominal pain, fever and can progress to sepsis. Again the presentation does not match.

- D

Cryptosporidium infection

Cryptosporidium causes gastroenteritis in immunocompromised patients only after ingestion of water contaminated by cows. The absence of evidence of immunocompromise makes this less likely.

- E

Shigella infection

Shigella gastroenteritis can occur with any food and is spread by the faecal-oral route. It occurs after an incubation period of 2-3 days and causes bloody diarrhoea, abdominal pain and fever. The absence of abdominal pain and bloody diarrhoea makes this less likely.

33178

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Next Question

Previous Question

Feedback

Tag Question

End Session

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Back to Filters

Question 173 of 199

A 32-year-old woman presents to the Emergency Department some 18 h after eating tinned salmon. She complains of nausea, vomiting, dysphagia, diplopia and an extreme thirst that is unquenchable. Over the few hours in the observation ward she develops worsening double vision and ptosis. Mini-mental State Examination is normal. She has complex restriction with eye movements, with restriction of abduction and adduction bilaterally. She is also dysarthric. Although progressive incoordination and diminished reflexes are noted, there is no sensory loss. Her blood pressure is 110/72 mmHg, with a pulse of 85/min and temperature is 37.2°C.

Which one of the following interventions would be most appropriate given this clinical picture?



- | | |
|---|---------------------------------------|
| A | Urgent anaesthetic review |
| B | IV immunoglobulin |
| C | IV Ciprofloxacin |
| D | IV Metronidazole |
| E | Computed tomography (CT) of the brain |

33179

Submit

Previous Question Skip Question

Calculator 

Normal Values 

Back to Filters

Question 173 of 199

A 32-year-old woman presents to the Emergency Department some 18 h after eating tinned salmon. She complains of nausea, vomiting, dysphagia, diplopia and an extreme thirst that is unquenchable. Over the few hours in the observation ward she develops worsening double vision and ptosis. Mini-mental State Examination is normal. She has complex restriction with eye movements, with restriction of abduction and adduction bilaterally. She is also dysarthric. Although progressive incoordination and diminished reflexes are noted, there is no sensory loss. Her blood pressure is 110/72 mmHg, with a pulse of 85/min and temperature is 37.2°C.

Which one of the following interventions would be most appropriate given this clinical picture?



A	Urgent anaesthetic review
B	IV immunoglobulin
C	IV Ciprofloxacin
D	IV Metronidazole
E	Computed tomography (CT) of the brain

Explanation



A	Urgent anaesthetic review
---	---------------------------

This clinical picture is highly suggestive of botulism, infection having occurred due to defective canning of the fish. Sporadic outbreaks of the disease, although rare, do still occur. Laboratory tests and imaging studies are not generally helpful in the diagnosis of the condition. The neurotoxin produced leads to CNS and autonomic nervous system paralysis, and later respiratory muscle weakness and hypoventilation can occur. For this reason the patient should be managed in an ITU setting. Supportive therapy with intubation and ventilation, respiratory physiotherapy, nasogastric tube placement and catheterisation is the treatment of choice for severe disease. Recovery occurs on average between 30 and 100 days after infection; severe cases may require ventilation for many months.

B	IV immunoglobulin
---	-------------------

IV immunoglobulin in the form of botulinum antitoxin can be useful, but only if given very early in presentation and in those who have ingested toxin but are as yet asymptomatic. This patient has presented with severe symptoms following several hours of illness, and it is too late to be of value.

C	IV Ciprofloxacin
---	------------------

Ciprofloxacin is not useful for botulism, which is the most likely clinical diagnosis.

D	IV Metronidazole
---	------------------

The antibiotics which can potentially be used in botulism against *Clostridium botulinum* include benzylpenicillin and metronidazole. However, whilst metronidazole can be used as treatment, the most important management is to stabilise the patient's airway as the paralysis can lead to respiratory arrest and she may need ventilation.

E	Computed tomography (CT) of the brain
---	---------------------------------------

The likely clinical diagnosis is botulism, and a CT brain is likely to delay reaching definitive airway management before respiratory paralysis occurs.

33179

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Next Question

Previous Question	Tag Question
Feedback	End Session

Difficulty: Average

Peer Responses %

Session Progress

Responses Correct:	0
Responses Incorrect:	159
Responses Total:	159
Responses - % Correct:	0%

Back to Filters

Question 174 of 199

A 24-year-old man attends the sexually transmitted diseases clinic after a recent trip to visit his grandparents in Barbados. He admits to having had unprotected sex during his 2-week holiday. On examination he has an extremely painful, deep ulcer with soft, ragged margins on the coronal sulcus of his penis. He has painful inguinal lymphadenopathy.

Which one of the following treatments would be the most appropriate choice in this case?

- A

Metronidazole
- B

Azithromycin
- C

Valiciclovir
- D

Aciclovir
- E

Oxytetracycline

33180

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 174 of 199

A 24-year-old man attends the sexually transmitted diseases clinic after a recent trip to visit his grandparents in Barbados. He admits to having had unprotected sex during his 2-week holiday. On examination he has an extremely painful, deep ulcer with soft, ragged margins on the coronal sulcus of his penis. He has painful inguinal lymphadenopathy.

Which one of the following treatments would be the most appropriate choice in this case?

- A

Metronidazole
- B

Azithromycin
- C

Valiciclovir
- D

Aciclovir
- E

Oxytetracycline

Explanation ⚙

- B

Azithromycin

This clinical picture is suggestive of chancroid infection, caused by *Haemophilus ducreyi*. Chancroid is endemic in parts of the Caribbean basin, Africa and south-west Asia and is commoner in non-white, uncircumcised populations. Patients may present with single or multiple genital ulcers, and painful lymphadenopathy occurs in 30–60% of patients. Gram-staining of ulcer exudates may demonstrate a ‘school of fish’ collection of short, thick Gram-negative rods. Definitive diagnosis is based on culture using enriched chocolate agar. Patients should be screened for other sexually transmitted diseases to rule out co-infection with other organisms. Suitable antibiotic treatments for *H. ducreyi* include macrolides and quinolones.

- A

Metronidazole

Metronidazole could have been used for a painful oral ulcer associated with gingivitis or with bacterial vaginosis. It can also be used for some protozoal infections, but this patient is unlikely to have any of the above.

- C

Valiciclovir

This is an antiviral option for herpes simplex infection. Herpes causes painful genital ulcers following sexual transmission, but the ragged margin and inguinal lymphadenopathy make chancroid a more likely diagnosis.

- D

Aciclovir

This is another antiviral treatment option for herpes simplex and, as described above, this is not the most likely diagnosis.

- E

Oxytetracycline

This is a broad-spectrum antibiotic that can be used for treatment for *Chlamydia*. The presentation of genital ulceration makes *Chlamydia* an unlikely cause, and therefore oxytetracycline an inappropriate treatment. *Chlamydia* normally presents in men with dysuria or discharge.

33180

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Next Question

- Previous Question

Feedback
- Tag Question

End Session

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Responses Correct:	0
Responses Incorrect:	160
Responses Total:	160
Responses - % Correct:	0%

Back to Filters

Question 175 of 199

A 22-year-old woman presents to the Emergency Department with a history of white, curdy vaginal discharge and of vulval irritation. She admits to a history of unprotected sexual intercourse during the previous week. A past medical history, including type 1 diabetes, is noted. Medication includes the combined oral contraceptive pill. Examination of the genital area reveals a red and inflamed vulval area with an adherent white discharge. Recent haemoglobin A1C on the hospital computer system was 10.2%.

Which one of the following interventions would be most appropriate in this case?

- A

Screening for gonorrhoea
- B

Fluconazole 150 mg po stat
- C

Clotrimazole cream to the labial area
- D

Oxytetracycline 100 mg po bd for 7 days
- E

Amoxicillin 500 mg po tds for 7 days

33181

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 175 of 199

A 22-year-old woman presents to the Emergency Department with a history of white, curdy vaginal discharge and of vulval irritation. She admits to a history of unprotected sexual intercourse during the previous week. A past medical history, including type 1 diabetes, is noted. Medication includes the combined oral contraceptive pill. Examination of the genital area reveals a red and inflamed vulval area with an adherent white discharge. Recent haemoglobin A1C on the hospital computer system was 10.2%.

Which one of the following interventions would be most appropriate in this case?

- A

Screening for gonorrhoea
- B

Fluconazole 150 mg po stat
- C

Clotrimazole cream to the labial area
- D

Oxytetracycline 100 mg po bd for 7 days
- E

Amoxicillin 500 mg po tds for 7 days

Explanation ⚙

- B

Fluconazole 150 mg po stat

This woman has symptoms of vaginal candida infection, almost certainly the cause of her presentation. Her diabetic control is suboptimal, and hence the high circulating glucose is likely to have contributed to the risk of thrush infection. Treatment regimens may include a single 150 mg dose of fluconazole, or insertion of a clotrimazole vaginal pessary. While high-oestrogen contraceptives do contribute to thrush risk, stopping them in this case would be inappropriate. Poor diabetic control means that this lady should not get pregnant at the present time and she should be encouraged to consult her diabetologist to see what can be done with respect to optimising her regime.

- A

Screening for gonorrhoea

Gonorrhoea is asymptomatic in the majority of female patients, but can present with mucopurulent discharge. The description of white discharge, pruritis and an inflamed vulva makes candida far more likely

- C

Clotrimazole cream to the labial area

This is the correct treatment in that it is an antifungal effective against candida infection. External cream to the vulva is unlikely to eradicate the infection and therefore not the most appropriate treatment option.

- D

Oxytetracycline 100 mg po bd for 7 days

This is a broad-spectrum antibiotic that can be used as treatment for *Chlamydia*. The presentation of genital ulceration makes *Chlamydia* an unlikely cause, and therefore oxytetracycline an inappropriate treatment. *Chlamydia* normally presents in men with dysuria or discharge.

- E

Amoxicillin 500 mg po tds for 7 days

This is a potential treatment option for urinary tract infection. The presence of a white discharge makes this an unlikely diagnosis.

33181

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Next Question

Previous Question	Tag Question
Feedback	End Session

Difficulty: Average

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Session Progress

Responses Correct:	0
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Responses Total:	161
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Back to Filters

Question 176 of 199

A 45-year-old Eastern European man is identified at an asylum assessment centre as suffering from persistent cough. On questioning he admits to fever, night sweats and weight loss which have continued for nearly a year. Occasionally his sputum has been blood-stained. Past medical history includes smoking unfiltered cigarettes for the past 20 years. On examination his body mass index is noted to be 17; he is pyrexial at 37.4°C. On examination there is non-specific wheeze and occasional crackles.

Which of the following would be the most appropriate initial investigation in this case?



- | | |
|---|--|
| A | Computed tomography (CT) of the thorax |
| B | Bronchoscopy with induced sputum |
| C | Chest X-ray |
| D | HIV testing |
| E | <i>Mycobacterium</i> serology |

33182

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Back to Filters

Question 176 of 199

A 45-year-old Eastern European man is identified at an asylum assessment centre as suffering from persistent cough. On questioning he admits to fever, night sweats and weight loss which have continued for nearly a year. Occasionally his sputum has been blood-stained. Past medical history includes smoking unfiltered cigarettes for the past 20 years. On examination his body mass index is noted to be 17; he is pyrexial at 37.4°C. On examination there is non-specific wheeze and occasional crackles.

Which of the following would be the most appropriate initial investigation in this case?



- A

Computed tomography (CT) of the thorax
- B

Bronchoscopy with induced sputum
- C

Chest X-ray
- D

HIV testing
- E

Mycobacterium serology

Explanation



- C

Chest X-ray

This history is highly suspicious for either pulmonary tuberculosis or underlying bronchial carcinoma. The most appropriate initial investigation therefore would be a chest X-ray to look for calcified nodules or hilar lymph node calcification in primary infection, or fibrosis and cavitation in the case of reactivation of the tubercle.

- A

Computed tomography (CT) of the thorax

Chest X-ray should be able to demonstrate pathological apical findings and a CT is seldom necessary. However, if a chest X-ray is normal then a CT can be helpful in finding further lesions.

- B

Bronchoscopy with induced sputum

First attempts should be to use sputum samples to test for acid-fast bacilli on Ziehl-Neelsen staining, with confirmation by growth. If no sputum can be obtained by coughing, then sputum should be induced.

- D

HIV testing

Clearly HIV positivity may increase the risk of tuberculosis, and testing should be considered later.

- E

Mycobacterium serology

Mycobacterium serology is not suggested as first-line investigation. T-spot testing can be used to help aid diagnosis.

33182

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Next Question

Previous Question	Tag Question
Feedback	End Session

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Session Progress

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Responses Total:	162
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Question 177 of 199

Investigations:

Hb	12.9 g/dl
Plt	$560 \times 10^9/l$
WCC	$4.5 \times 10^9/l$
Na ⁺	148 mmol/l
K ⁺	3.2 mmol/l
Urea	18.4 mmol/l
Creatinine	195 μmol/l

Which of the following diagnoses fits best with this clinical picture?

- | | |
|---|-------------------|
| A | Norovirus |
| B | Rotavirus |
| C | Amoebiasis |
| D | Giardiasis |
| E | <i>Salmonella</i> |

Submit

[Previous Question](#)

Skip Question

Calculator

Normal Values

Back to Filters

Question 177 of 199

A 76-year-old woman presents to the emergency department some 8–12 hours after eating a ready-made chicken meal. She complains of fever, abdominal cramps, nausea, vomiting and diarrhoea. She has recently been taking co-amoxiclav for a respiratory tract infection, but nothing else of note. Her blood pressure is 122/72 mmHg, with a post-drop of 20 mmHg on standing with corresponding increase in pulse rate.

Investigations:

Hb	12.9 g/dl
Plt	560 × 10 ⁹ /l
WCC	4.5 × 10 ⁹ /l
Na ⁺	148 mmol/l
K ⁺	3.2 mmol/l
Urea	18.4 mmol/l
Creatinine	195 μmol/l

Which of the following diagnoses fits best with this clinical picture?

- A

Norovirus
- B

Rotavirus
- C

Amoebiasis
- D

Giardiasis
- E

Salmonella

Explanation ⚙

- E

Salmonella

This patient has acute bacterial gastroenteritis. She is likely to have acquired this from the ready-made chicken meal eaten some hours previously. Given this food history and the evidence of severe dehydration due to the infection, the most likely candidates are *Salmonella* or *Campylobacter* infection. The incubation period of *Campylobacter* infection can sometimes be much longer, up to 7 days, but can be as short as 24 h, as is the case here. The incubation period of *Salmonella* gastroenteritis is 6–72 h, making it the more likely diagnosis in this case. Uncomplicated infections with these agents do not require treatment, but where there is significant dehydration as in this case, oral or intravenous rehydration therapy ± quinolone antibiotics could be considered.

- A

Norovirus

Norovirus causes symptoms 12–48 h after exposure. It is spread via droplets and is highly infectious. It causes outbreaks of ‘winter vomiting illness’, with projectile vomiting, diarrhoea and fever and settles quickly. Treatment is supportive but patients will need to be strictly isolated.

- B

Rotavirus

Rotavirus is a cause of viral gastroenteritis up to the age of five. Following 1–5 days of incubation there is malaise, diarrhoea, vomiting and fever.

- C

Amoebiasis

Ameobiasis is caused by *Entamoeba histolytica*, a protozoon. Spread is via the faecal-oral route. Presentation is usually with gastrointestinal symptoms but in 1% there can be invasive liver disease. Subtle amoebic dysentery presents slowly but can lead to bloody diarrhoea and fever. Diagnosis is with stool microscopy demonstrating trophozoites, bleed and pus cells.

- D

Giardiasis

It is caused by *Giardia lamblia*, a flagellated protozoon, which infects the jejunum and duodenum following faecal-oral spread. Causes explosive diarrhoea, abdominal diarrhoea and malabsorption. Diagnosis is with stool microscopy for cysts and trophozoites or PCR. Treatment is with tindazole 2 g stat, with high levels of hygiene. May cause lactose intolerance as well.

33183

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Next Question

- Previous Question

Feedback
- Tag Question

End Session

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Session Progress

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Responses Total:	163
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Back to Filters

Question 178 of 199

An 18-year-old student is referred by his general practitioner to the Emergency Department, suffering from pharyngitis, shortness of breath with wheeze and a morbilliform skin rash. Examination reveals generalised lymphadenopathy, wheeze in the lower zones is confirmed, and some skeletal muscle tenderness to palpation is noted. Chest X-ray is carried out and shows marked lower zone consolidation, which seems much worse than the findings noted on examination. Investigations reveal a slightly elevated white blood cell count, with normal urea and electrolytes. The presence of cold-agglutinins is noted.

Given the likely diagnosis, which one of the following would be the appropriate antibiotic choice in this case?

- A

Clarithromycin
- B

Penicillin V
- C

Amoxicillin
- D

Co-amoxiclav
- E

Ciprofloxacin

33184

Submit

Previous QuestionSkip Question

Calculator✔

Normal Values✔

Back to Filters

Question 178 of 199

An 18-year-old student is referred by his general practitioner to the Emergency Department, suffering from pharyngitis, shortness of breath with wheeze and a morbilliform skin rash. Examination reveals generalised lymphadenopathy, wheeze in the lower zones is confirmed, and some skeletal muscle tenderness to palpation is noted. Chest X-ray is carried out and shows marked lower zone consolidation, which seems much worse than the findings noted on examination. Investigations reveal a slightly elevated white blood cell count, with normal urea and electrolytes. The presence of cold-agglutinins is noted.

Given the likely diagnosis, which one of the following would be the appropriate antibiotic choice in this case?

- A

Clarithromycin
- B

Penicillin V
- C

Amoxicillin
- D

Co-amoxiclav
- E

Ciprofloxacin

Explanation ⚙

- A

Clarithromycin

This patient has *Mycoplasma pneumoniae*, which is primarily said to affect school-age children and young adults. Symptoms include non-exudative pharyngitis, bullous myringitis, skin rashes and wheeze on respiratory examination. Other symptoms and signs may include muscle tenderness, nerve palsies, lymphadenopathy, splenomegaly and conjunctivitis. Hints as to the diagnosis come from the fact that the chest X-ray findings are much worse than the clinical findings, and that cold-agglutinins are positive. Macrolide antibiotics such as erythromycin and clarithromycin are the treatments of choice for this condition.

Community-acquired pneumonia (CAP) is managed generally based on severity and suspicion of cause empirically before an organism can be cultured. Mild and previously untreated CAP is caused by *Streptococcus pneumoniae* and *Haemophilus influenzae* and is treated with oral amoxicillin. Moderate CAP is caused by the above organisms as well as *Mycoplasma pneumoniae*, and management is with oral amoxicillin and clarithromycin. Severe CAP is treated with intravenous co-amoxiclav and oral clarithromycin. Clarithromycin has very good oral bioavailability and causes thrombophlebitis if given intravenously and therefore should be given orally even in severe infections. Atypical CAP can be caused by *Legionella pneumophillia*, *Chlamydophila* species and *Pneumocystitis jiroveci*.

- B

Penicillin V

Penicillin V is more commonly used for pharyngeal infections than chest infections.

- C

Amoxicillin

Amoxicillin may be given to this patient with CAP depending on severity as described above. It provides good antimicrobial effect against the main Gram-positive pathogens.

- D

Co-amoxiclav

Co-amoxiclav may be given to this patient with CAP depending on severity as described above. It provides good antimicrobial effect against the main Gram-positive pathogens.

- E

Ciprofloxacin

Ciprofloxacin provides good antimicrobial activity against *Pseudomonas* species – important pathogens in exacerbations of bronchiectasis and in the immunosuppressed patient – but has little value in treating CAP.

33184

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Next Question

- Previous Question

Feedback
- Tag Question

End Session

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Responses Correct:	0
Responses Incorrect:	164
Responses Total:	164
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Back to Filters

Question 179 of 199

A 76-year-old woman presents with pain over her upper left chest. She has suffered a weeping vesicular rash over the area for the past few days associated with burning intense pain. There is a history of chicken pox infection as a child. On examination there is a well-demarcated rash consisting of dried-up crusted and healing vesicles, corresponding to one dermatome.

Which of the following options represents the most appropriate treatment in this patient?

- | | |
|---|--------------------|
| A | Aciclovir ointment |
| B | Oral aciclovir |
| C | Oral valciclovir |
| D | Gabapentin |
| E | IV aciclovir |

33185

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Back to Filters

Question 179 of 199

A 76-year-old woman presents with pain over her upper left chest. She has suffered a weeping vesicular rash over the area for the past few days associated with burning intense pain. There is a history of chicken pox infection as a child. On examination there is a well-demarcated rash consisting of dried-up crusted and healing vesicles, corresponding to one dermatome.

Which of the following options represents the most appropriate treatment in this patient?

- A

Aciclovir ointment
- B

Oral aciclovir
- C

Oral valciclovir
- D

Gabapentin
- E

IV aciclovir

Explanation ⚙

D

Gabapentin

It is clear that this patient has suffered an unpleasant attack of Herpes zoster reactivation, also known as shingles. At this stage though, with crusting, dried-up and healing lesions there is no value in antiviral therapy. Gabapentin is a useful oral agent to block the pain associated with post-herpetic neuralgia; 300 mg daily is the most appropriate starting dose, with effective doses being from 900 mg upwards, and it can be increased up to 3.6 g/day. Alternatives include tricyclic anti-depressants and topical capsaicin cream.

A

Aciclovir ointment

This is mostly useful against conjunctival varicella zoster, where there is dermatomal distribution within the trigeminal nerve and including the eye.

B

Oral aciclovir

Oral aciclovir is a good treatment option for Herpes simplex genital infections. These are sexually transmitted infections characterised by painful irritation and itching.

C

Oral valciclovir

Valciclovir is an alternative option to acyclovir, with good cover against herpes viruses.

E

IV aciclovir

This is most appropriate for HSV encephalitis. In HSV encephalitis there is spread from cranial nerve ganglia to frontal and temporal lobes, leading to headaches, behavioural change, fever, fits and headaches.



33185

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Next Question

- Previous Question

Feedback
- Tag Question

End Session

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Session Progress

Responses Correct:	0
Responses Incorrect:	165
Responses Total:	165
Responses - % Correct:	0%

Back to Filters

Question 180 of 199

A 31-year-old man presents with his male partner for review. For the past few days he has had worsening diarrhoea with voluminous fluid loss. On further questioning he admits to weight loss over the past six months. Modified acid-fast staining of stool culture reveals red-stained round oocysts against a blue-green background. Investigations reveal a reduced CD4/CD8 ratio.

Which one of the following would be the most appropriate initial intervention in this case?

- | | |
|---|--------------------|
| A | Oral ciprofloxacin |
| B | Oral metronidazole |
| C | IV cefotaxime |
| D | HIV testing |
| E | Oral co-amoxiclav |

33186

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Back to Filters

Question 180 of 199

A 31-year-old man presents with his male partner for review. For the past few days he has had worsening diarrhoea with voluminous fluid loss. On further questioning he admits to weight loss over the past six months. Modified acid-fast staining of stool culture reveals red-stained round oocysts against a blue-green background. Investigations reveal a reduced CD4/CD8 ratio.

Which one of the following would be the most appropriate initial intervention in this case?

Your answer was correct

- A

Oral ciprofloxacin
- B

Oral metronidazole
- C

IV cefotaxime
- D

HIV testing
- E

Oral co-amoxiclav

Explanation

⚙

D

HIV testing

This patient has diarrhoea with a stool sample that suggests oocysts consistent with *Cryptosporidium* infection. The reduced CD4/CD8 ratio raises the possibility of HIV infection, and screening for HIV is clearly required. In patients with a CD4 count of less than 200 cells/mm³ blood, chronic diarrhoea is common once *Cryptosporidium* infection is established. Antibiotic trials for *Cryptosporidium* have been disappointing, and at present there is not enough evidence to recommend any particular regime, but some patients do appear to respond to nitroxanide. In patients who are HIV-negative, the infection tends to be self-limiting and patients recover after only a few days.

A

Oral ciprofloxacin

Ciprofloxacin is a good treatment option for gastrointestinal infection with *Salmonella*, *Shigella* and *Campylobacter*. The abnormal staining of acid-fast pathogens makes this unlikely. In addition, the partner is not unwell and there is no history of ingestion of contaminated food.

B

Oral metronidazole

Metronidazole would be a good antibiotic choice if anaerobes such as *Gardnerella*, *Entamoeba*, *Giardia* or *Clostridium* were suspected. This might be suspected with bloody diarrhoea or, for *C. difficile*, recent antibiotic use.

C

IV cefotaxime

Cefotaxime provides good broad-spectrum cover and is useful in meningitis and pneumonia rather than for gastrointestinal infections.

E

Oral co-amoxiclav

Co-amoxiclav provides far better cover for respiratory and urinary infections and would be of little use for this patient.

33186

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Next Question

Previous Question

Tag Question

Feedback

End Session

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Session Progress	
Responses Correct:	1
Responses Incorrect:	165
Responses Total:	166
Responses - % Correct:	1%

Back to Filters

Question 181 of 199

A 21-year-old male who immigrated from Peru two months ago comes to the Emergency Department with left-sided hip pain. He fell one week ago and claims that since then he has had difficulty walking, secondary to pain. He has had occasional headaches recently. He tells you that his appetite has been poor for three months and he has lost four stones in weight. He is a non-smoker and is currently a student. On examination, he is cachectic and febrile with a temperature of 37.7°C. Pulse is 54/min, blood pressure (BP) 130/78 mmHg and you feel an enlarged spleen of 10 cm. His hip is generally tender but there is a full range of movement. He has an unsteady gait and has generalised weakness with normal tone.

Investigations:

Hb	12.8 g/dl
PLT	32 × 10 ⁹ /l
WCC	3.1 × 10 ⁹ /l
Neutrophils	1.4 × 10 ⁹ /l

Chest X-ray of the left spine and left hip AP (anteroposterior) and lateral were all normal.

Given the suspected diagnosis, which of the following investigations would be the gold standard to confirm the underlying pathology?



- A

Ultrasound scan (U/S) of the left hip
- B

Computerised tomography (CT) of the left hip
- C

U/S of the abdomen
- D

Bone marrow aspiration and culture
- E

Oesophageo-gastro-duodenoscopy (OGD) and biopsy

33187

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 181 of 199

Chest X-ray of the left spine and left hip AP (anteroposterior) and lateral were all normal.

3

- ### Explanation



- This patient has tuberculosis. Tuberculosis is a chronic granulomatous disease caused by intracellular slow-growing bacteria. Transmission to humans occurs after occupational exposure or through ingestion of contaminated food products, especially unpasteurised milk products. It remains a significant health problem in many developing countries.

splenomegaly and paradoxical bradycardia. Bone symptoms occur in 55% of patients with brucellosis, which often presents as pyrexia of unknown origin (PUO). Neutropenia and thrombocytopaenia are relatively common. Bone marrow aspiration and culture is the gold standard for diagnosis. Blood culture is positive in 15–70% of patients, but a high clinical suspicion is required as subculture often takes four weeks; sensitivity is less than that for bone marrow aspiration and culture and, as such, bone marrow tissue culture is preferred.

Treatment guidelines as issued by the World Health Organization (WHO) include doxycycline in combination with streptomycin or rifampicin for 6 weeks. Quinolones have also been tried.

- If there was a suspicion of septic arthritis with acute fever, isolated joint pain and reduced range of movement, then joint ultrasound and aspiration would have been diagnostic.

- an underlying malignancy or abscess was suspected, then this could have been an appropriate investigation. An abscess might have been suggested by a swinging temperature and tenderness, but would not explain many features of the history such as the bradycardia and splenomegaly.

- unlikely to be helpful in this case. If renal cell cancer was suspected with more urinary symptoms as a cause for PUO, in an older patient this would be far more likely to be a diagnostic investigation.

- There are no symptoms to suggest an upper GI cause in this case apart from weight loss. If Whipple's disease was suspected then biopsy would be helpful, but the absence of diarrhoea and the presence of hip pain make this unlikely.

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Feedback

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Back to Filters

Question 182 of 199

A 71-year-old Caucasian male is admitted to your ward with a three-day history of pleuritic right-sided chest pain, cough productive of green sputum, shortness of breath and a fever. He has smoked 20 cigarettes a day for 50 years and is usually fit and well. He has no penicillin allergy.

On examination, he is alert, has a fever of 38.1°C and a respiratory rate of 40/min. He is tachycardic, pulse 120/min and his blood pressure is 86/61 mmHg. On chest auscultation, he has coarse inspiratory breath sounds and bronchial breathing in the right lower lobe.

Investigations:

Na ⁺	131 mmol/l
K ⁺	4.2 mmol/l
Urea	14.2 mmol/l
Creatinine	137 mol/l
C-reactive protein (CRP)	314 g/l
WCC	16.8 × 10 ⁹ /l
Hb	11.3 g/dl
PLT	534 × 10 ⁹ /l

Chest X-ray shows shadowing in the right lower zone and blunting of the right heart border.

You want to start this patient on medication for his pneumonia.

Which of the following antibiotics/antibiotic combinations would be a reasonable choice for treatment?

- A

IV cefuroxime 1.5 g tds
- B

Oral co-amoxiclav 625 mg tds + oral clarithromycin 500 mg bd
- C

IV levofloxacin 500 mg od and oral rifampicin 600 mg od
- D

IV co-amoxiclav 1.2 g tds and IV clarithromycin 500mg BD
- E

IV ciprofloxacin 400 mg bd

33188

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Previous Question

Skip Question

Calculator

Normal Values

Question 182 of 199

On examination, he is alert, has a fever of 38.1°C and a respiratory rate of 40/min. He is tachycardic, pulse 120/min and his blood pressure is 86/61 mmHg. On chest auscultation, he has coarse inspiratory breath sounds and bronchial breathing in the right lower lobe.

Na ⁺	131 mmol/l
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Urea	14.2 mmol/l
Creatinine	137 μmol/l
C-reactive protein (CRP)	314 mg/l
WCC	16.8 × 10 ⁹ /l
Hb	11.3 g/dl
PLT	534 × 10 ⁹ /l

You want to start this patient on medication for his pneumonia.

3

- | | |
|---|--|
| A | IV cefuroxime 1.5 g tds |
| B | Oral co-amoxiclav 625 mg tds + oral clarithromycin 500 mg bd |
| C | IV levofloxacin 500 mg od and oral rifampicin 600 mg od |
| D | IV co-amoxiclav 1.2 g tds and IV clarithromycin 500mg BD |
| E | IV ciprofloxacin 400 mg bd |

- | | |
|---|--|
| D | IV co-amoxiclav 1.2 g tds and IV clarithromycin 500mg BD |
|---|--|

Patients get 1 point each for

- confusion
- urea >7 mmol/l
- respiratory rate >30/min
- blood pressure <90 mmHg systolic and 60 mmHg diastolic and
- patient older than 65.

Treatment for severe CAP includes the combination of co-amoxiclav and clarithromycin delivered IV as a first-line option.

Treatment for severe CAP includes the combination of co-amoxiclav and clarithromycin delivered IV as a first-line option.

- | | |
|---|-------------------------|
| A | IV cefuroxime 1.5 g tds |
|---|-------------------------|

clarithromycin if the patient is penicillin allergic.

- B Oral co-amoxiclav 625 mg tds + oral clarithromycin 500 mg bd

This treatment option could be considered for mild to moderate community-acquired pneumonia if amoxicillin had recently been used and shown to be ineffective.

- | | |
|---|---|
| C | IV levofloxacin 500 mg od and oral rifampicin 600 mg od |
|---|---|

Rifampicin can be added if a staphylococcal cause of pneumonia is suspected.

- | | |
|---|----------------------------|
| E | IV ciprofloxacin 400 mg bd |
|---|----------------------------|

Ciprofloxacin is a good choice against *Pseudomonas* but has little use in the empirical treatment of CAP.

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Back to Filters

Question 183 of 199

A 31-year-old male is admitted with behavioural changes. One month before admission he was on holiday in North Tanzania. He was exposed to multiple bites from insects and he developed an erythematous swelling on his left ankle. He then developed intermittent fever, myalgia and headache and was given quinine by a local doctor, with little effect. Over the last week he has been sleeping most of the day and been up all night and has developed episodes of mania with rapid bursts of speech, followed by generalised apathy. He also complains of generalised headache with no blurred vision or change with posture, sneezing or coughing. He smokes 20 cigarettes/day and drinks alcohol at weekends, he has tried cannabis in the past and admits to occasional crack use, but his partner is not sure whether he has taken any recently.

On examination, he is agitated but afebrile. His pulse is 120/min and blood pressure 102/65 mmHg. His chest is clear and abdomen soft although there is generalised tenderness. On examination of his peripheral nerves there is a fine tremor in his upper limbs and increased tone throughout. He has generalised decreased power but reflexes are normal.

Investigations:

WCC	9.8 × 10 ⁹ /l
Hb	9.5 g/dl
MCV	82.1 fl
PLT	67 × 10 ⁹ /l
Total protein	84 g/l
Albumin	29 g/l
ALT	35 U/l
ALP	68 U/l
Bilirubin	9 mol/l
Chest X-ray	normal
ECG	sinus tachycardia
Thick and thin films for malaria parasites	negative

Which investigation would be most appropriate as the next step given the suspected diagnosis?

- A

Urgent computerised tomography (CT) of the brain
- B

Blood culture
- C

Psychiatry consultation
- D

Serology
- E

Serum electrophoresis

33189

Submit

Previous QuestionSkip Question

Calculator✔

Normal Values✔

Back to Filters

Question 183 of 199

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Bilirubin	9 mol/l
Chest X-ray	normal
ECG	sinus tachycardia
Thick and thin films for malaria parasites	negative

Which investigation would be most appropriate as the next step given the suspected diagnosis?

A	Urgent computerised tomography (CT) of the brain
B	Blood culture
C	Psychiatry consultation
D	Serology
E	Serum electrophoresis

Explanation

A	Urgent computerised tomography (CT) of the brain
---	--

This patient has *Trypanosoma brucei rhodesiense* (East African or Rhodesian African trypanosomiasis) infection. A number of tourists to game parks in northern Tanzania recently acquired East African trypanosomiasis, which is transmitted through the bite of the tsetse fly. This illness manifests as an erythematous swelling or chancre at the site of the fly bite 5–15 days later, fever, headache and myalgia, before it progresses to meningoencephalitis. The second phase often occurs after a few weeks or a month in East African trypanosomiasis, but can take longer than one year in the West African disease. It is manifested by persistent headaches, daytime somnolence followed by night-time insomnia and behavioural changes, mood swings and, in some patients, depression. In late disease the patient becomes comatose (i.e. sleeping sickness) and it can be fatal.

A computerised tomography (CT) of the head is required in order for a LP (lumbar puncture) to be performed. CT and magnetic resonance imaging (MRI) of the brain in late disease reveal cerebral oedema and white matter enhancement. Cerebrospinal fluid (CSF) investigations should always be performed in patients with parasitaemia or lymphadenopathy. The double centrifugation technique is the most sensitive method to detect trypanosomes. Other CSF findings include a high white cell count (WCC), elevated IgM and elevated protein levels.

The treatment of choice is suramin or eflornithine in stage 1 (chancre/fever/myalgia) disease and melarsoprol or eflornithine in stage 2 (central nervous system (CNS)/meningoencephalitic) stage.

B	Blood culture
---	---------------

During the acute phase of the disease, trypanosomes are often detectable on smears of peripheral blood, but blood cultures would not be able to demonstrate any parasites.

C	Psychiatry consultation
---	-------------------------

There is plenty of evidence for organic disease such as low platelet count, high white cell count and abnormalities on physical examination that would require a physical cause to be sought before seeking a psychiatric explanation.

D	Serology
---	----------

There is no current serological test for East African trypanosomiasis, but there is serological testing for *T. gambiense*, which occurs in West and Central Africa. There is also serological testing for *T. cruzi*, American trypanosomiasis.

E	Serum electrophoresis
---	-----------------------

There is unlikely to be monoclonal expansion, this is unlikely to be a helpful investigation.

33189
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Next Question

Previous Question	Tag Question
Feedback	End Session

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Responses Correct:	1
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Responses Total:	169
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Back to Filters

Question 184 of 199

A 49-year-old male is seen in the Emergency Department with a two-week history of general malaise, anorexia and fever. He has lost 6 kg in weight. He had a sore throat a week before and his general practitioner (GP) had told him that it was a viral infection. On examination, he has a temperature of 37.6°C and three splinter haemorrhages on his right index finger. On cardiac auscultation he has a pansystolic murmur, loudest at the apex and radiating to the axilla.

Blood cultures are taken from three peripheral sites and the patient is started on intravenous benzylpenicillin and gentamicin.

Transthoracic echocardiogram demonstrates a 0.3 × 0.7 cm vegetation attached to the posterior surface of the mitral valve.

The cultures are all negative for growth at 5 days and at day 10 the patient still has a fever. You decide to speak to the cardiac surgeon.

Which of the following is a definite indication for surgical intervention?

- ≡
- | | |
|---|---|
| A | Persistent unexplained fever for 5 days in culture-negative prosthetic valve endocarditis |
| B | Persistent fever for 10 days in native valve endocarditis |
| C | Murantic endocarditis |
| D | Development of mild heart failure as a result of valve dysfunction |
| E | <i>Staphylococcus aureus</i> prosthetic valve endocarditis |

33190

Submit

Previous QuestionSkip Question

Calculator✔

Normal Values✔

Back to Filters

Question 184 of 199

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- A

Persistent unexplained fever for 5 days in culture-negative prosthetic valve endocarditis
- B

Persistent fever for 10 days in native valve endocarditis
- C

Murantic endocarditis
- D

Development of mild heart failure as a result of valve dysfunction
- E

Staphylococcus aureus prosthetic valve endocarditis

Explanation ⚙

- E

Staphylococcus aureus prosthetic valve endocarditis

Infectious endocarditis results from microbial infection of the endothelial surface of the heart. Blood cultures are positive in >95% of cases of infectious endocarditis. Three sets of cultures should be taken with 10 ml of blood in each bottle. These should be incubated for up to three weeks to grow fastidious organisms. Transthoracic echocardiogram (TTE) is specific in 91-98% of cases at detecting vegetations, but the sensitivity is only 45-60%. Suboptimal views are seen with prosthetic valves and transoesophageal echocardiography should be undertaken if vegetations are not seen on TTE.

There are several indications where cardiac surgery is or may be indicated for optimal outcome:

- Development of moderate to severe heart failure as a result of valve dysfunction
- Partial dehiscence of a prosthetic valve
- Persistent bacteraemia despite optimal antibiotics
- *aureus* prosthetic valve endocarditis
- Fungal infectious endocarditis
- Persistent fever for 10 days in culture-negative prosthetic valve endocarditis with no other explanation for fever
- Absence of effective antibiotics
- Relapse of endocarditis after optimal antibiotics in a prosthetic valve.

Indications where surgery may be required for optimal outcome in order of strength of recommendation include:

- Perivalvular extension of infection (myocardial, annular, septal abscess or intracardiac fistula)
- Poorly responsive *aureus* endocarditis involving the aortic/mitral valve
- Infectious endocarditis caused by highly resistant organisms
- Persistent fever for 10 days in culture-negative native-valve endocarditis with no other explanation
- Relapse of native-valve endocarditis after optimal antibiotics
- Large (>1 cm diameter) hypermobile vegetations.

- A

Persistent unexplained fever for 5 days in culture-negative prosthetic valve endocarditis

This would be correct when it came to 10 days and there was no other cause for fever.

- B

Persistent fever for 10 days in native valve endocarditis

This is a situation where surgical input may be required if there is no other cause for fever, but the indication is not as strong as for other options.

- C

Murantic endocarditis

This is a non-infectious vegetation of fibrin and platelets without neutrophils and infective organisms and evidence of inflammation. Surgery is generally not needed.

- D

Development of mild heart failure as a result of valve dysfunction

If moderate to severe heart failure develops then this would be an indication for surgical intervention.

33190
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Next Question

Previous Question	Tag Question
Feedback	End Session

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Responses Total:	170
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Back to Filters

Question 185 of 199

A 28-year-old HIV-positive woman presents to clinic complaining of shortness of breath. She has a CD4 count of $120 \times 10^6/l$ and has recently been started on antiretroviral therapy (ART). She admits that she quite often forgets to take her medication, including her prophylactic co-trimoxazole.

She describes a one-week history of worsening shortness of breath on exertion and of retrosternal chest pain. She has a dry cough and has not produced any sputum.

On examination she is febrile at $38.5^{\circ}C$, respiratory rate is 28/min, O_2 saturations 97% on air, pulse 100 beats/min. The chest is clear on auscultation, cardiovascular examination is normal. A chest X-ray shows only fluffy shadowing around both hilae.

Which investigation is the most useful pointer to the underlying diagnosis?

- A

Electrocardiogram (ECG)
- B

Lateral chest film
- C

Exercise oximetry
- D

Bedside spirometry
- E

D-dimer

33191

Submit

Previous Question

Skip Question

Calculator



Normal Values



Back to Filters

Question 185 of 199

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- A

Electrocardiogram (ECG)
- B

Lateral chest film
- C

Exercise oximetry
- D

Bedside spirometry
- E

D-dimer

Explanation ⚙

- C

Exercise oximetry

The most likely diagnosis is obviously *Pneumocystis jirovecii* pneumonia (PCP) Exercise oximetry is an extremely useful test in this setting, as patients who are oxygenated well at rest may desaturate dramatically on exercise. An arterial blood gas is also important as it will influence the treatment given. If p(O₂) <9.3 kPa, then high-dose methyprednisolone should also be prescribed in addition to IV co-trimoxazole.

The main differential here is of pulmonary embolus. Being HIV-positive is an independent risk factor for thromboembolic disease. However, the history is inconsistent, with a progressive course and a dry cough and a very immunocompromised patient. Retrosternal chest pain is commonly seen in PCP.

The next investigation would probably be an electrocardiogram (ECG), but exercise oximetry and an arterial blood gas are even more pressing.

- A

Electrocardiogram (ECG)

Whilst an ECG should definitively be done for this patient, the question asked is what investigation would most likely lead to a diagnosis. As the clinical history is suggestive of PCP, an ECG is unlikely to guide to that diagnosis and is therefore not the correct option.

- B

Lateral chest film

A lateral X-ray would give a good view of the retrosternal space and would also help demonstrate a subtle pneumothorax, but would not help diagnose PCP.

- D

Bedside spirometry

Bedside spirometry is helpful in the diagnosis of obstructive airway illness, such as asthma and COPD, as well as restrictive airway disease such as idiopathic pulmonary fibrosis, but is unlikely to be useful in this patient. Had there been a history or examination findings of wheeze, diurnal variation or heavy smoking history this would have been more relevant.

- E

D-dimer

D-dimer is a biochemical test which can help exclude pulmonary embolism and deep vein thrombosis and is very unlikely to lead to diagnosis even under those circumstances, due to low specificity. It should be requested in the case of a moderate suspicion of DVT or PE as determined by Wells score.

33191

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Next Question

- Previous Question

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Responses Total:	171
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Back to Filters

Question 186 of 199

A 24-year-old man who has recently returned from India presents with bloody diarrhoea and mucus. More recently he has also developed some abdominal pain and vomiting.

Investigations:

Hb	11.2 g/dl
WCC	16.3 × 10 ⁹ /l
PLT	756 × 10 ⁹ /l
Urea	11.5 mmol/l
ESR	56 mm/h
Na ⁺	143 mmol/l
K ⁺	2.7 mmol/l
Creatinine	90 μmol/l
C-reactive protein (CRP)	72 mg/l

What is the most appropriate initial treatment?

- A

Oral metronidazole
- B

Discharge with advice on rehydration and outpatient appointment
- C

IV ceftriaxone
- D

IV Fluid and electrolyte replacement
- E

Oral ciprofloxacin

33192

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 186 of 199

Investigations:

Hb	11.2 g/dl
WCC	$16.3 \times 10^9/\text{l}$
PLT	$756 \times 10^9/\text{l}$
Urea	11.5 mmol/l
ESR	56 mm/h
Na ⁺	143 mmol/l
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- **Stressors** – external factors that cause stress

- | | |
|---|---|
| A | Oral metronidazole |
| B | Discharge with advice on rehydration and outpatient appointment |
| C | IV ceftriaxone |
| D | IV Fluid and electrolyte replacement |
| E | Oral ciprofloxacin |

- ## D IV Fluid and electrolyte replacement

A	Oral metronidazole
---	--------------------

- | | |
|---|---|
| B | Discharge with advice on rehydration and outpatient appointment |
|---|---|

C	IV ceftriaxone
---	----------------

- As above, antibiotics are not indicated for this patient. Ceftriaxone is a broad-spectrum antibiotic commonly used for meningitis and

can be used for typhoid and paratyphoid fever.

- | | |
|---|--------------------|
| E | Oral ciprofloxacin |
|---|--------------------|

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Figure 1

Difficulty: Average

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Responses Correct:	1
Responses Incorrect:	171
Responses Total:	172

Back to Filters

Question 187 of 199

A 30-year-old Ugandan woman presented to the genito-urinary medicine (GUM) clinic for a sexual health screen on her GP’s advice. She has been with the same partner for 8 years and has not had other sexual partners in that time frame. Before coming to the UK 10 years ago, she had previously been a sex worker in Africa. She is asymptomatic and consents to tests for chlamydia, gonorrhoea, HIV and syphilis.

Her syphilis serology is as follows:

- TPHA +ve
- RPR -ve.

She has never heard of syphilis and does not think she has been tested before. She does not recall ever having had symptoms of genital ulceration or rash.

Which one of the following statements is most correct regarding this patient?

A	She does not require any treatment for syphilis
B	This is early latent syphilis
C	This is late latent syphilis
D	This is neurosyphilis
E	She needs an urgent lumbar puncture

33193

Submit

Previous QuestionSkip Question

Calculator✔

Normal Values✔

Question 187 of 199

- TPHA +ve
- RPR -ve

- sted before

this patient?

- ↓

supported by the fact that RPR has become negative although TPHA is positive.

A She does not require any treatment for syphilis

- ow and the treatment of choice is three classes of IMI b

B This is early latent syphilis

1) This is neurosyphilis

Treponemal antibody screening and confirmatory testing
Screening test: EIA (ex-TPHA) and VDRL/RPR combination

Rate this question:

100

Responses - % Correct: 1%

Back to Filters

Question 188 of 199

A 32-year-old man returns from a trip across the Mediterranean, North and sub-Saharan Africa. He reports feeling generally unwell for the past few days with a fever. On examination you notice a tick bite eschar and a surrounding rash on the left mid-thigh.

Which is the most likely causative organism?

- A

Rhiphicephalus sanguineus
- B

Rickettsia rickettsii
- C

Rickettsia conorii
- D

Rickettsia prowzekii
- E

Orientia tsutsugamushi

33194

Submit

Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 188 of 199

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Rickettsia conorii
- D

Rickettsia prowzekii
- E

Orientia tsutsugamushi

Explanation



- C

Rickettsia conorii

This patient has infection with *R. conorii*, the hallmark of which is the tick bite eschar. Common presenting features include fever, rash, malaise, nausea, vomiting, diarrhoea and joint and muscle pain. Diagnosis is usually made on clinical history and serological testing. The most appropriate choice for antibiotic therapy is doxycycline; other effective choices include ciprofloxacin and levofloxacin. Although fatalities occur, they are rare. Complications may include neuropathy, Guillain-Barré syndrome, acute renal failure, hepatomegaly and thrombocytopenia.

- A

Rhiphicephalus sanguineus

The vector for infection with *R. conorii* is commonly *R. sanguineus* or dog tick and is not an infectious organism of humans.

- B

Rickettsia rickettsii

This is the pathogen which causes Rocky Mountain spotted fever (RMSF). RMSF is endemic throughout the Americas and following one to two weeks after a tick bite there is general malaise, fever and a rash. The rash starts as a centripetal macular rash progressing to a petechial rash by day six. The absence of such a rash makes this diagnosis unlikely, and RMSF usually has a target rash around the bite lesion rather than an eschar.

- D

Rickettsia prowzekii

This organism causes murine or endemic typhus following a bite by fleas on rats. This causes headaches, fever, muscle and joint pain as well as nausea and vomiting, with a discrete rash six days after onset. The absence of this constellation makes this diagnosis unlikely.

- E

Orientia tsutsugamushi

This organism is most common in South East Asia and is therefore unlikely. It presents with eschar, hepatomegaly, cough and lymphadenopathy.

33194

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Previous Question	Tag Question
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Responses Total:	174
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Back to Filters

Question 189 of 199

A 26-year-old man is admitted to the Emergency Department from the airport, having just returned on a flight from Bangladesh. Around one hour before landing he collapsed after severe vomiting and diarrhoea on the plane. His travelling partner reports that he became ill one day before leaving Bangladesh, with high-volume, painless watery diarrhoea. Blood pressure is 95/60 mmHg and his pulse is 100/min and regular. Dark-field microscopy of a fresh stool specimen reveals Gram-negative bacilli.

Given the likeliest diagnosis, which one of the following antibiotic choices would be most appropriate in the treatment of this patient?

- | | |
|---|----------------|
| A | Ciprofloxacin |
| B | Metronidazole |
| C | Amoxicillin |
| D | Co-trimoxazole |
| E | Penicillin V |

33195

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Back to Filters

Question 189 of 199

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- A Ciprofloxacin
- B Metronidazole
- C Amoxicillin
- D Co-trimoxazole
- E Penicillin V

Explanation ⚙

- A Ciprofloxacin

This patient has cholera, a comma-shaped Gram-negative bacillus. It causes clinical disease by releasing an enterotoxin that affects the small bowel, leading to secretion of huge amounts of fluid and electrolytes into the intestinal lumen. Diagnosis is via dark-ground microscopy of a fresh stool specimen. While rehydration is the primary therapy for cholera, use of antibiotics is proven to shorten the duration and severity of the illness. Antibiotic choices may include quinolones such as ciprofloxacin, tetracyclines, erythromycin and co-trimoxazole, but there are problems with resistance to tetracyclines emerging in patients from the Indian subcontinent in particular. For this reason, ciprofloxacin and erythromycin are the correct answers given here. With appropriate rehydration and antibiotic therapy where required, patients usually show signs of recovery over a few days.

- B Metronidazole

Metronidazole would be a good antibiotic choice if anaerobes such as *Gardnerella*, *Entamoeba*, *Giardia* or *Clostridium* were suspected. This might be suspected with bloody diarrhoea or, for *C. difficile*, recent antibiotic use.

- C Amoxicillin

Amoxicillin is a good antimicrobial choice for chest infections and can be useful in the treatment of urine and skin infections, but is of limited used in gastrointestinal problems.

- D Co-trimoxazole

Co-trimoxazole is not widely used now due to associated risks of blood dyscrasias. It is still primarily utilised for the treatment and prophylaxis of pneumocystis pneumonia.

- E Penicillin V

Penicillin V is more commonly used for pharyngeal infections than gastrointestinal infections.

33195

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Next Question

Previous Question	Tag Question
Feedback	End Session

Difficulty: Average

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Responses Correct:	1
Responses Incorrect:	174
Responses Total:	175
Responses - % Correct:	1%

Back to Filters

Question 190 of 199

A 37-year-old Ghanaian woman was referred with fatigue. She has been followed for the past year with bizarre behaviour and psychotic symptoms and is treated with amisulpiride. She was diagnosed five years ago with HIV-1 infection but was lost to follow-up.

The physical examination was unremarkable. CD4 count was $16 \times 10^6/l$ and HIV viral load $>500,000$ copies/ml. Treatment with antiretroviral medications was commenced and the patient was discharged.

One month later the patient presents to you with confusion. She is afebrile on admission. She is disorientated in time and place but not in person.

On this occasion the CD4 count is $414 \times 10^6/l$ and HIV viral load 503 copies/ml.

Investigations:

Hb	10 g/dl
WCC	$4.5 \times 10^9/l$
Neutrophils	72%
Lymphocytes	18%
PLT	$435 \times 10^9/l$
C-reactive protein (CRP)	8 mg/l

Computerised tomography (CT) of the brain reveals multiple low-density lesions in the left hemisphere

Cerebrospinal fluid (CSF) WCC count	120/ml (<5)
CSF glucose	3.4 mmol/l (3.3–4.4)
CSF protein	0.56 g/l (0.15–0.45)
CSF culture	No growth in 48 h
CSF cryptococcal antigen	Negative
CSF toxoplasmosis PCR	Negative
India ink stain	Negative

Four days later in hospital she develops right-sided weakness.

Magnetic resonance of the brain with contrast diffusely enhances the lesions.

Which one of the following diagnoses is most likely?

- A

Toxoplasmosis
- B

Progressive multifocal leukoencephalopathy
- C

Cryptococcal meningitis
- D

Cytomegalovirus encephalitis
- E

Tuberculous meningitis

33196

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Previous QuestionSkip Question

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Normal Values✔

Back to Filters

Question 190 of 199

A 37-year-old Ghanaian woman was referred with fatigue. She has been followed for the past year with bizarre behaviour and psychotic symptoms and is treated with amisulpiride. She was diagnosed five years ago with HIV-1 infection but was lost to follow-up.

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- A

Toxoplasmosis
- B

Progressive multifocal leukoencephalopathy
- C

Cryptococcal meningitis
- D

Cytomegalovirus encephalitis
- E

Tuberculous meningitis

Explanation



- B

Progressive multifocal leukoencephalopathy

The history and investigations are consistent with cerebral lymphoma or progressive multifocal leukoencephalopathy (PML). PML is characterised by hemiparesis, disturbances of speech and vision and progressive dementia. The lesions in the brain comprise multiple areas of demyelination, abnormal oligodendrocytes and later pronounced astrogliosis. Lesions may enhance with gadolinium contrast. However, they do not usually have the characteristic ring-enhancing appearance seen in the cerebral lesions of toxoplasmosis. PML is associated with the 'JC' virus named after the patient in whom the polyoma virus was first isolated.

- A

Toxoplasmosis

Typically, presentation can occur with neurological signs developing over days to weeks and then can cause seizures. In addition, raised intracranial pressure can cause headaches and vomiting. Some present with diffuse encephalitis causing confusion, seizures and reduced consciousness. Normally toxoplasmosis would show ring-enhancing lesions on a CT scan. Also, the negative PCR makes this unlikely.

- C

Cryptococcal meningitis

Cryptococcal infection is a common cause of meningitis and meningo-encephalitis in HIV-infected patients. It can present with headache, confusion, altered mental status, seizures and can have focal neurological signs present. The absence of antigens makes this less likely.

- D

Cytomegalovirus encephalitis

CMV establishes latent infection which reactivates as immunosuppression in HIV progresses. CMV can affect the central nervous system, retina, GI tract, lungs and biliary tract. In CNS infection there is usually progressive disorientation, withdrawal and apathy. On examination cranial nerve palsies and nystagmus are typical signs. Typically ring-enhancing lesions are seen on CT, but MRI is the best mode of imaging and diagnosis is confirmed on CSF PCR and treatment is with ganciclovir. The imaging findings in this patient makes CMV an unlikely but ideally should be excluded on PCR.

- E

Tuberculous meningitis

With this condition there would likely be meningeal enhancement on imaging studies, detectable AFB in the CSF and low glucose in the CSF as well.

33196

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- Previous Question

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Responses Correct:	1
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Responses Total:	176
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Back to Filters

Question 191 of 199

A 19-year-old student is brought to the Emergency Department by ambulance after his flat-mates called 999. They had been back at university for approximately ten days since the summer break. He complained initially of flu like symptoms, but over the past 24 h has taken to his bed complaining of a severe headache and neck stiffness. He is now drowsy and confused. On examination, he is pyrexial (38.9°C), his BP is 95/50 mmHg and pulse is 95/min and regular. He has cold peripheries and a purpuric rash which appears to be extending even as you examine him. By the time you finish examining him he is unresponsive to commands. The paramedics have started a normal saline IV which is running through stat.

Which of the following is the most important next step?

- A

Intubation and ventilation
- B

IV hydrocortisone
- C

IV ceftriaxone
- D

IV FFP
- E

IV benzylpenicillin

34150

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Previous QuestionSkip Question

Calculator✔

Normal Values✔

Back to Filters

Question 191 of 199

A 19-year-old student is brought to the Emergency Department by ambulance after his flat-mates called 999. They had been back at university for approximately ten days since the summer break. He complained initially of flu like symptoms, but over the past 24 h has taken to his bed complaining of a severe headache and neck stiffness. He is now drowsy and confused. On examination, he is pyrexial (38.9°C), his BP is 95/50 mmHg and pulse is 95/min and regular. He has cold peripheries and a purpuric rash which appears to be extending even as you examine him. By the time you finish examining him he is unresponsive to commands. The paramedics have started a normal saline IV which is running through stat.

Which of the following is the most important next step?

- A

Intubation and ventilation
- B

IV hydrocortisone
- C

IV ceftriaxone
- D

IV FFP
- E

IV benzylpenicillin

Explanation

C

IV ceftriaxone

Early antibiotic therapy is crucial with respect to successful management of meningococcal meningitis. As such, IV ceftriaxone is the most important next step. Ceftriaxone covers meningococci, pneumococci, *H. influenzae* type B and streptococci, and is therefore a very prudent empirical choice. In the community, IM or IV benzylpenicillin should be given.

A

Intubation and ventilation

Whilst the patient should have their airway supported urgently and may be a good candidate for ITU, having appropriate antibiotics is more pressing.

B

IV hydrocortisone

IV steroids may reduce neurological sequelae, and as such are an important addition to therapy, although not initially.

D

IV FFP

DIC is a potential complication that can be noted on the coagulation screen, but treating the underlying cause is more appropriate.

E

IV benzylpenicillin

IV benzylpenicillin is not recommended because of the possibility of resistant meningococci.

34150

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Previous Question	Tag Question
Feedback	End Session

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Session Progress

Responses Correct:	1
Responses Incorrect:	176
Responses Total:	177
Responses - % Correct:	1%

Back to Filters

Question 192 of 199

You are asked to see a 71-year-old man who is on the cardiovascular surgery ward having undergone aortic valve surgery. He had an initial period intubation and ventilation, and three days later has begun to deteriorate with signs of a lower respiratory tract infection. On examination he is pyrexial (38.8°C), with pulse 90/min and regular. He has signs of right-sided consolidation.

Investigations:

Hb	12.4 g/dl
WCC	15.5 x10 ⁹ /l
PLT	203 x10 ⁹ /l
Na ⁺	137 mmol/l
K ⁺	4.6 mmol/l
Creatinine	110 micromol/l
Albumin	28 g/l
ALT	56 U/l
CXR	right lower lobe shadowing

Which of the following is the most appropriate initial antibiotic therapy?

- A

Ciprofloxacin and piperacillin/ tazobactam
- B

Ceftazidime and piperacillin/ tazobactam
- C

Imipenem and piperacillin/ tazobactam
- D

Meropenem and levofloxacin
- E

Clarithromycin and levofloxacin

36028

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Question 192 of 199

Investigations:

Hb	12.4 g/dl
WCC	15.5 x10 ⁹ /l
PLT	203 x10 ⁹ /l
Na ⁺	137 mmol/l
K ⁺	4.6 mmol/l
Creatinine	110 micromol/l
Albumin	28 g/l
ALT	56 U/l
CXR	right lower lobe shadowing

11

- | | |
|---|--|
| A | Ciprofloxacin and piperacillin/ tazobactam |
| B | Ceftazidime and piperacillin/ tazobactam |
| C | Imipenem and piperacillin/ tazobactam |
| D | Meropenem and levofloxacin |
| E | Clarithromycin and levofloxacin |

- D Meropenem and levofloxacin

A	Ciprofloxacin and piperacillin/ tazobactam
---	--

B	Ceftazidime and piperacillin/ tazobactam
---	--

C	Imipenem and piperacillin/ tazobactam
---	---------------------------------------

E	Clarithromycin and levofloxacin
---	---------------------------------

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Next Question

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Session Progress

Responses Correct:	1
Responses Incorrect:	177
Responses Total:	178
Responses - % Correct:	1%

Back to Filters

Question 193 of 199

A 24-year-old man is referred to the Respiratory Clinic for review. He has begun HAART for the treatment of HIV a few months earlier and has recently returned from a holiday to Pakistan. Whilst there he visited his uncle who has just been diagnosed with tuberculosis. He has a normal CXR and a positive quantiferon gamma test. He did not receive the BCG vaccination as a child.

Which of the following is the most appropriate next step?



- | | |
|---|---|
| A | Four-drug anti-TB therapy for 6 months |
| B | Four-drug anti-TB therapy for 12 months |
| C | BCG vaccination |
| D | Isoniazid / Rifampicin for 3 months |
| E | Observe |

37187

Submit

Previous QuestionSkip Question

Calculator

Normal Values

Back to Filters

Question 193 of 199

A 24-year-old man is referred to the Respiratory Clinic for review. He has begun HAART for the treatment of HIV a few months earlier and has recently returned from a holiday to Pakistan. Whilst there he visited his uncle who has just been diagnosed with tuberculosis. He has a normal CXR and a positive quantiferon gamma test. He did not receive the BCG vaccination as a child.

Which of the following is the most appropriate next step?



- A

Four-drug anti-TB therapy for 6 months
- B

Four-drug anti-TB therapy for 12 months
- C

BCG vaccination
- D

Isoniazid / Rifampicin for 3 months
- E

Observe

Explanation



- D

Isoniazid / Rifampicin for 3 months

With no symptoms of TB, a normal CXR and a positive quantiferon test, this patient fits the criteria for diagnosis of latent TB. As such, the BHIVA guidelines recommend either 6 months’ treatment with Isoniazid or 3 months’ combination therapy. For non-CNS TB, BHIVA guidelines recommend treatment with 4 drugs for 2 months, then 2 drugs for a further 4 months. Where there is CNS TB, a 9-month treatment period is recommended.

- A

Four-drug anti-TB therapy for 6 months

This duration is for drugs in total. Four drugs are needed for two months, and then a further four months of two drugs.

- B

Four-drug anti-TB therapy for 12 months

Again, this duration is not usually needed for four-drug TB therapy.

- C

BCG vaccination

BCG is a live vaccination and, as such, it may be potentially harmful in this situation and is therefore not recommended.

- E

Observe

The positive quantiferon test means that latent TB is likely to be present, despite the absence of clinical evidence and X-ray findings. Patients with HIV have a much greater risk of progression to active TB from the latent state; for this reason, observation only is not appropriate.

37187

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Next Question

Previous Question

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Session Progress

Responses Correct:	1
Responses Incorrect:	178
Responses Total:	179
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Back to Filters

Question 194 of 199

A 32-year-old woman attends the hepatology clinic for review. She is 14 weeks’ pregnant and was found to have abnormal hepatitis serology at her booking visit. She has no past medical history of note, although admits to intermittent IV drug abuse during her teenage years. On examination her blood pressure is 105/70 mmHg, with pulse 65/min and regular. Her BMI is 22 and there are no signs of chronic liver disease.

Investigations:

Hb	12.5 g/dl
WCC	7.0 x10 ⁹ /l
PLT	203 x10 ⁹ /l
Na ⁺	137 mmol/l
K ⁺	4.5 mmol/l
Creatinine	85 micromol/l
ALT	32 U/l
Bilirubin	12 micromol/l
ALP	182 U/l
Hep B surface antibody	Positive
Hep B core antibody	Positive
Hep Be antigen	Negative
Hep Bs antigen	Negative

Which of the following is the most likely diagnosis?

- A

Autoimmune hepatitis
- B

Chronic hepatitis B
- C

Cleared hepatitis B
- D

Non-A non-B hepatitis
- E

Vaccination for hepatitis B

39045

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 194 of 199

Investigations:

Hb	12.5 g/dl
WCC	7.0 x10 ⁹ /l
PLT	203 x10 ⁹ /l
Na ⁺	137 mmol/l
K ⁺	4.5 mmol/l
Creatinine	85 micromol/l
ALT	32 U/l
Bilirubin	12 micromol/l
ALP	182 U/l
Hep B surface antibody	Positive
Hep B core antibody	Positive
Hep Be antigen	Negative
Hep Bs antigen	Negative

11

- | | |
|---|-----------------------------|
| A | Autoimmune hepatitis |
| B | Chronic hepatitis B |
| C | Cleared hepatitis B |
| D | Non-A non-B hepatitis |
| E | Vaccination for hepatitis B |

- | | |
|---|---------------------|
| C | Cleared hepatitis B |
|---|---------------------|

A	Autoimmune hepatitis
---	----------------------

B	Chronic hepatitis B
---	---------------------

D	Non-A non-B hepatitis
---	-----------------------

E	Vaccination for hepatitis B
---	-----------------------------

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Previous Question	Tag Question
Feedback	End Session

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Session Progress

Responses Correct:	1
Responses Incorrect:	179
Responses Total:	180
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Back to Filters

Question 195 of 199

A 27-year-old man is admitted to the Emergency Department with severe shortness of breath, and lethargy such that he is only able to walk a few yards. He admits feeling generally unwell with fevers, weight loss and a dry cough over the past few months. He is a former IV drug abuser who moved to the UK from southern Italy a few years earlier. Examination reveals blood pressure of 105/80 mmHg, with pulse is 86/min and regular. He looks pale. There is generalised lymphadenopathy and his BMI is 20.

Investigations:

Hb	7.6 g/l (reticulocyte count not elevated)
WCC	4.2 x10 ⁹ /l
PLT	197 x10 ⁹ /l
Na ⁺	137 mmol/l
K ⁺	4.4 mmol/l
Creatinine	110 micromol/l
ESR	65 mm/1 st h
Bone marrow aspirate	Pure red cell aplasia

Which of the following is the most likely diagnosis?

- A

Autoimmune haemolytic anaemia
- B

Cytomegalovirus infection
- C

Myelodysplasia
- D

Myelofibrosis
- E

Parvovirus infection

39046

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Previous Question

Skip Question

Calculator

Normal Values

Back to Filters

Question 195 of 199

A 27-year-old man is admitted to the Emergency Department with severe shortness of breath, and lethargy such that he is only able to walk a few yards. He admits feeling generally unwell with fevers, weight loss and a dry cough over the past few months. He is a former IV drug abuser who moved to the UK from southern Italy a few years earlier. Examination reveals blood pressure of 105/80 mmHg, with pulse is 86/min and regular. He looks pale. There is generalised lymphadenopathy and his BMI is 20.

Investigations:

Hb	7.6 g/l (reticulocyte count not elevated)
WCC	4.2 x10 ⁹ /l
PLT	197 x10 ⁹ /l
Na ⁺	137 mmol/l
K ⁺	4.4 mmol/l
Creatinine	110 micromol/l
ESR	65 mm/1 st h
Bone marrow aspirate	Pure red cell aplasia

Which of the following is the most likely diagnosis?

- A

Autoimmune haemolytic anaemia
- B

Cytomegalovirus infection
- C

Myelodysplasia
- D

Myelofibrosis
- E

Parvovirus infection

Explanation



- E

Parvovirus infection

The general deterioration over the past few months, coupled with a previous history of intravenous drug abuse, raises the possibility of underlying HIV. Parvovirus B19-related red cell aplasia is associated with HIV infection and accounts for the picture seen here: anaemia without reticulocytosis and red cell aplasia on bone marrow aspiration. B19 DNA can be identified by PCR to confirm the underlying cause. IV immunoglobulin is the intervention of choice.

- A

Autoimmune haemolytic anaemia

Autoimmune haemolytic anaemia is destruction of red blood cells through an antibody-mediated process. There are multiple causes split into three categories: warm antibody types (e.g. SLE, Evans syndrome, CLL), cold antibody type (viral infection, *Mycoplasma pneumoniae* infection) or drug related. The history may that of anaemia with the suggestion of an underlying cause, and there may also be evidence of increased bilirubin such as gallstones or jaundice. The lack of evidence of raised bilirubin does not exclude autoimmune haemolytic anaemia in this patient, but the evidence of aplasia of red blood cells does, as does the normal reticulocyte count, of which the latter should be raised during haemolysis.

- B

Cytomegalovirus infection

Cytomegalovirus is a common herpesvirus which can cause gastrointestinal disease, pneumonia, retinitis and encephalitis during immunosuppression. In the immunosuppressed patient complications include haemolytic anaemia via an antibody-mediated process. As with the above explanation, the absence of a raised reticulocyte count and the presence of aplasia make this a less likely diagnosis.

- C

Myelodysplasia

Myelodysplasias are haematopoietic disorders characterised by dysplastic changes in cell lineages of the bone marrow. The marrow itself becomes hyper- or hypocellular due to clonal proliferation of abnormal cells leading to peripheral blood cytopenias. This usually occurs in the elderly, but can be due to previous chemotherapy, environmental toxins or some rare disorders. The absence of such risk factors makes this a very unlikely diagnosis, and the bone marrow results exclude this diagnosis.

- D

Myelofibrosis

Myelofibrosis is clonal haemopoietic stem cell proliferation with histological evidence on bone marrow biopsy. Presentation is variable and can be with features of changes in haemaglobin, white cell counts or platelet numbers, as well as constitutional symptoms and massive splenomegaly. This is unlikely based on the absence of clinical findings, and peripheral blood film should show leuko-erythoblastosis with teardrop poikilocytosis and there may be megakaryocyte fragments. Bone marrow aspiration is usually dry and biopsy is needed.

39046

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Previous Question	Tag Question
Feedback	End Session

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Session Progress

Responses Correct:	1
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Responses Total:	181
Responses - % Correct:	1%

Question 196 of 199

Investigations:

Which of the following is the most appropriate next step in diagnosis?

Skip Question

Question 196 of 199

Investigations:

Hb	110 g/l
WCC	9.9 x 10 ⁹ /l (elevated eosinophils)
PLT	212 x 10 ⁹ /l
ESR	45 mm / 1 st hour
CRP	82 mg/l
Na	139 mmol/l
K	4.5 mmol/l
Creatinine	95 micromol/l
AST	192 U/l
ALP	245 U/l
Bilirubin	23 micromol/l
USS liver	Multiple cysts in the right lobe of the liver with internal septae
CXR	Small right pleural effusion

11

- | | |
|---|------------------------------------|
| A | Albendazole trial of therapy |
| B | CT guided cyst aspiration |
| C | CT guided pleural fluid aspiration |
| D | ELISA testing for Echinococcus |
| E | Surgical cyst excision |

- #### D ELISA testing for Echinococcus

A Albendazole trial of therapy

- Intervention depends on the size of the cyst, smaller cysts responding well to medical therapy alone although larger cysts usually require albendazole combined with surgical excision. It is important of course to confirm the diagnosis first.

B	CT guided cyst aspiration
---	---------------------------

- CT-guided aspiration without drug cover runs the risk of anaphylaxis or seeding of *Echinococcus* along the track.

C	CT guided pleural fluid aspiration
---	------------------------------------

- The pleural fluid may be reactive or due to seeding of *Echinococcus* because of cyst rupture. Aspiration may risk further spreading, and other measures to confirm the diagnosis should be attempted first.

E	Surgical cyst excision
---	------------------------

- Surgical cyst excision was formerly the only treatment for *Echinococcus*, but is now considered an intervention either in combination with drug therapy or after a period of drug therapy, rather than as a diagnostic tool.

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Responses Incorrect:	181
Responses Total:	182
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Back to Filters

Question 197 of 199

A 33-year-old woman who has completed her family comes to the sexually transmitted diseases clinic complaining of a grey-white fishing smelling vaginal discharge. She is married with one regular partner, has completed her family, and had an intra-uterine contraceptive device inserted some 10 weeks earlier. She tells you that she is washing herself 3-4 times per day, but the problem has not improved. Examination reveals a grey-white malodourous vaginal discharge. Microscopy reveals the presence of clue cells.

Which one of the following is the most appropriate intervention?

- | | |
|---|---------------------|
| A | Oral cephalixin |
| B | Oral clarithromycin |
| C | Oral coamoxiclav |
| D | Oral doxycycline |
| E | Oral metronidazole |

70595

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Previous QuestionSkip Question

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Normal Values

Back to Filters

Question 197 of 199

A 33-year-old woman who has completed her family comes to the sexually transmitted diseases clinic complaining of a grey-white fishing smelling vaginal discharge. She is married with one regular partner, has completed her family, and had an intra-uterine contraceptive device inserted some 10 weeks earlier. She tells you that she is washing herself 3-4 times per day, but the problem has not improved. Examination reveals a grey-white malodourous vaginal discharge. Microscopy reveals the presence of clue cells.

Which one of the following is the most appropriate intervention?

- A

Oral cephalixin
- B

Oral clarithromycin
- C

Oral coamoxiclav
- D

Oral doxycycline
- E

Oral metronidazole

Explanation

⚙

E

Oral metronidazole

This patient’s symptoms, coupled with the presence of clue cells on microscopy, are consistent with a diagnosis of bacterial vaginosis. Oral metronidazole at a standard dose can be given for 5–7 days, one 2 g dose can be given stat, or metronidazole vaginal gel can also be used. Clindamycin or tinidazole are alternatives to metronidazole.

A

Oral cephalixin

Cephalosporins are not as effective as metronidazole in clearance of *Gardnerella*, although some limited data do suggest they clear the bacteria.

B

Oral clarithromycin

Macrolides are ineffective in clearing *Gardnerella*.

C

Oral coamoxiclav

Co-amoxiclav is ineffective in this setting and may increase the risk of *Candida* infection.

D

Oral doxycycline

Doxycycline is a first-line therapy for treatment of chlamydia, not for the treatment of bacterial vaginosis.

70595

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Next Question

Previous Question

Feedback

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Difficulty: Average

Peer Responses %

Session Progress

Responses Correct:	1
Responses Incorrect:	182
Responses Total:	183
Responses - % Correct:	1%

Back to Filters

Question 198 of 199

A 32-year-old homeless man presents to the Emergency department with severe headaches, behavioural changes and pyrexia. He has been admitted to the unit on two previous occasions with heroin overdoses. On examination he is emaciated and has a number of needle marks consistent with drug abuse, his temperature is 38.6°C. You also notice that he has finger clubbing and nail bed haemorrhages. There is an ejection systolic murmur. Neurological examination reveals evidence of mild papilloedema.

Investigations:

Hb	10.1 g/dl
WCC	11.2 x 10 ⁹ /l
PLT	120 x 10 ⁹ /l
ESR	87 mm/hr
Na ⁺	139 mmol/l
K ⁺	4.5 mmol/l
Creatinine	155 µmol/l
CT head	Frontal lobe abscess

He is to be urgently reviewed by the neurosurgical team.

Which of the following would be the most appropriate initial antibiotic choice pending culture results?

- A

IV penicillin
- B

IV cefotaxime
- C

IV co-amoxiclav
- D

IV vancomycin
- E

IV flucloxacillin

70614

Submit

Previous Question

Skip Question

Calculator

Normal Values

Question 198 of 199

Investigations:

Hb	10.1 g/dl
WCC	11.2 x 10 ⁹ /l
PLT	120 x 10 ⁹ /l
ESR	87 mm/hr
Na ⁺	139 mmol/l
K ⁺	4.5 mmol/l
Creatinine	155 μmol/l
CT head	Frontal lobe abscess

Which of the following would be the most appropriate initial antibiotic choice pending culture results?

- | | |
|---|-------------------|
| A | IV penicillin |
| B | IV cefotaxime |
| C | IV co-amoxiclav |
| D | IV vancomycin |
| E | IV flucloxacillin |

- | | |
|---|-------------------|
| E | IV flucloxacillin |
|---|-------------------|

A	IV penicillin
---	---------------

B	IV cefotaxime
---	---------------

C	IV co-amoxiclav
---	-----------------

D	IV vancomycin
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A 28-year-old woman presented to the Emergency Department 1 hour after receiving a needlestick injury whilst at work. She was a nurse in a Gastroenterology Department and her needlestick injury had been received from a hepatitis C-positive patient. The patient was taking ribavirin and pegylated alpha interferon. The nurse had been wearing gloves at the time of the needlestick, and had punctured the pad of her left index finger. She had washed the wound with running water afterwards.

Donor virology investigations:

Hepatitis C RNA	Low levels detected
HBsAg	-
Anti-HBc	-
Anti-HBs	-
HIV RNA PCR	-

What should be the next step?

- A

Arrange hepatitis B vaccination
- B

Give anti-hepatitis C immunoglobulin
- C

Reassure and discharge home
- D

Start post-exposure prophylaxis
- E

Take blood from the nurse for virology

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Question 199 of 199

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Give anti-hepatitis C immunoglobulin
- C

Reassure and discharge home
- D

Start post-exposure prophylaxis
- E

Take blood from the nurse for virology

Explanation



- E

Take blood from the nurse for virology

It is important to take baseline samples from the nurse to determine whether she was a carrier or was infected with a blood-borne virus before her exposure to this patient (as this would have different implications for treatment). If these are negative, her blood will continue to be monitored to check whether she has contracted hepatitis C from this patient. If she has, treatment for the virus will begin at that point. Post-exposure prophylaxis is not recommended for hepatitis C.

- A

Arrange hepatitis B vaccination

This nurse is likely to have already had the hepatitis B vaccination, as this is a requirement for healthcare workers. Furthermore, vaccinating the patient against hepatitis B will not influence her risk of contracting hepatitis C from the donor patient. The most important step is to take virology bloods from the nurse. These bloods are used to tell whether the nurse is already a carrier or infected with a blood-borne virus, before her exposure to the patient. Her virology bloods will then be monitored to decide whether she has contracted hepatitis C from the patient.

- B

Give anti-hepatitis C immunoglobulin

This is not a treatment option for hepatitis C, and there is no evidence that it is effective as a vaccine or post-exposure prophylaxis. Furthermore, at this stage, it is unclear whether the nurse has contracted hepatitis C from the patient. Guidance is that treatment for hepatitis C should not be started unless the patient has contracted the condition, i.e. post-exposure prophylaxis therapies are not recommended. The most important action here is to take the nurse's blood for virology; this acts as a baseline to decide whether she was already a carrier or infected with a blood-borne virus before her exposure to the patient. Her virology will then be monitored to decide whether she has contracted hepatitis C from the patient.

- C

Reassure and discharge home

Although it is not appropriate to give this nurse post-exposure prophylaxis (this is not recommended for hepatitis C), it is important to take the nurse's blood for virology. This is to check whether, at baseline, she was a carrier or was infected with a blood-borne virus (i.e. before her exposure to this patient). Her virology will then be monitored to determine whether she has contracted hepatitis C from this patient.

- D

Start post-exposure prophylaxis

Post-exposure prophylaxis has not been shown to be effective in the prevention of contracting hepatitis C, and therefore is not recommended. Instead, the nurse's blood should be taken for virology; this is in order to have a baseline sample to check whether she was carrying or was infected with a blood-borne virus before her exposure to this patient. Her blood will then be monitored to determine whether she has contracted hepatitis C from this patient.

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